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ABSTRACT

This report presents the results of a study from July 1965 to July 1969 on the effects of year-long prekindergarten programs for disadvantaged children involving eight school districts in New York State and approximately 1,800 children. The study focused on factors which the schools considered important and major objectives of their programs. These were intelligence, language, self-concept, and physical development. The study was a true experimental design with two replications. The basic data were collected by individualized tests and measurements (pretest and posttest) for the prekindergarten year for three waves of children. Posttesting was completed in the follow-up years. Reports and ratings by teams of observers, as well as teachers and program directors, were made in each of the three years. Each child's parent was interviewed. The cognitive programs were able to close some of the gap between disadvantaged and nondisadvantaged children. However, the difference that remained exceeded the difference overcome. Further, the results were achieved only by the cognitive-oriented programs, and not by the nursery-oriented or early childhood-oriented programs. (JM)

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PREKINDERGARTEN PROGRAMS FOR EDUCATIONALLY DISADVANTAGED CHILDREN

by

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assisted by

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The following report results from a contract between the New York State Education Department and the Office of Education. The idea of studying prekindergarten originated in the experience of the State's Experimental Programs authorized by 1958 legislation. Louis T. Di Lorenzo was administrator of the Experimental Program in 1964 when several districts proposed experimentation for disadvantaged children preceding kindergarten. A design for a study more comprehensive than current state funding could support at the time evolved. Cooperative Research funding was sought and secured.

The inception of the study predated Headstart, the Elementary and Secondary Education Act of 1965 and the Experimental Prekindergarten Program of the State Education Department. The findings of the study, adding new knowledge in a new field, will be helpful to local, state, and federal planning. The points of view or opinion of the principal investigator do not, however, represent official State Education Department position or policy.

The skill in research design and implementation of the principal investigator is acknowledged as well as the devotion of the two co-authors. Additionally, the staff and children of the participating schools deserve commendation.

Lorne H. Woollatt

Associate Commissioner
for Research and
Evaluation

SUMMARY

This report presents the results of a study on the effects of year-long prekindergarten programs for disadvantaged children. The study covered the period from July 1965 to July 1969. Eight school districts in New York State and approximately 1,800 children were involved in the study.

The study focused on factors which the schools considered important and major objectives of their programs. These were intelligence, language, self-concept, and physical development. Various limitations prevented the study of other factors relevant to the effects of prekindergarten with respect to home and community.

The study was a true experimental design with two replications. Variables were controlled by randomization, matching, and statistically.

The major questions posed by the study were:

1. Were the prekindergarten programs effective in achieving the objectives in the areas of intelligence, language, self-concept, and physical development?
2. Were the prekindergarten programs' effectiveness differentiated on the basis of the sex, race, or socioeconomic status of the children?
3. Were some types of programs more effective than others?
4. Were there transfers of carryover effects from prekindergarten to kindergarten, first, and second grade on the factors of readiness and achievement?

The basic data for the study were collected by pre and post individualized tests and measurements for the prekindergarten year

for three waves of children. Posttesting was completed in the follow-up years. Reports and ratings by teams of observers were made in each of the three years. Data were also accumulated by reports, ratings, and Q-Sorts by teachers and program directors. Data were also collected by interviews of each child's parent or guardian.

Data were analyzed by a variety of statistical techniques.

With respect to the main questions of the study, the findings are the following:

1. The disadvantaged children who were in prekindergarten (experimental) out performed the disadvantaged children who did not attend (control) on both intelligence and language as measured by the Stanford-Binet Intelligence Scale, the Peabody Picture Vocabulary Test, and the Illinois Test of Psycholinguistic Abilities. However, these results were achieved only by the cognitive-oriented programs and not the nursery or early childhood-oriented programs.
2. Neither cognitive nor nursery-education programs were effective in significantly improving self-concept or physical development for the experimental groups above the control groups.
3. The programs were no more successful with disadvantaged boys or girls in improving intelligence and language.
4. The programs were successful for both black and white children, but significantly more successful for white children in improving intelligence and language.
5. Two districts, operating nursery-oriented programs, included a subsample of nondisadvantaged children. They were successful in improving the IQ scores of these children and thereby increasing the gap in intelligence between the disadvantaged and nondisadvantaged children.
6. Children who had been in cognitive prekindergarten programs scored significantly higher on the Metropolitan Readiness Tests than their controls at the end of kindergarten. They also scored significantly higher on the same Tests than did the children who attended early childhood prekindergarten programs. The children from the early childhood programs did not score significantly higher on the Metro-

politan Readiness Tests than the other kindergarten children who had not been in prekindergarten.

7. At the end of first grade, children from cognitive prekindergarten programs scored significantly higher on the Metropolitan Achievement Tests than their first grade classmates who had been controls. No difference existed between the MAT scores for the experimental and control groups in the districts that operated the nursery programs.

8. By the end of second grade, there was no significant difference in Metropolitan Achievement Tests scores between experimental and control groups for the limited sample of Wave I children which was tested.

The cognitive programs were able to close some of the gap between disadvantaged and nondisadvantaged children. However, the difference that remained exceeded the difference overcome. In the most successful district, the rate of improvement achieved would have required 2 years of prekindergarten at the same rate of progress to completely close the cognitive gap.

Further research in the immediate future should be directed at curricular development and engineering instructional approaches, both with built-in evaluations. Global evaluations of prekindergartens should await developments in these areas before being conducted.

CHAPTER I

INTRODUCTION

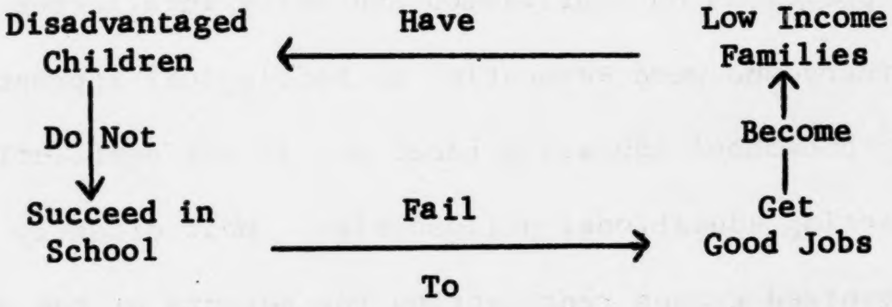
This study evolved out of the recognition by a number of urban school districts of their increasing problem of educating disadvantaged children. This recognition was coupled with their hope that compensatory preschool experience might provide these deprived children an "early lead" or "step-up" on their middle class peers who would later join them in formal kindergarten classes. The study was initiated basically to determine whether the school districts could in fact provide successful compensatory prekindergarten programs. Shortly thereafter, in late 1964, this same hope was expressed on a national scale by the creation of Project Head Start.

Although the general educational intent of the programs in this study and that of Head Start was quite similar, other than educational factors gave rise to Project Head Start. The earliest discernible factor was the Civil Rights Movement and the legislation, marches, boycotts, and other innumerable activities associated with it. The popular coverage given to these developments by the mass communications media led to our renewed awareness of the racial inequality in our nation. This condition, the insidious aftermath of slavery, has manifested itself in many forms. Housing, employment, education, social status, political voice, and public image, as well as self-image as a race, are all areas in which blacks are at a disadvantage.

Of all the areas affected by discrimination, the economic benefit to be achieved by equal employment was seen to be the most pervasive remedy. The disparity in income by races became so large as to label the early sixties as those years in which America rediscovered poverty. The subsequent years gave rise to antijob-discrimination legislation, Federal work-study programs, and vocational retraining aimed at the trade union level. However, to be truly equitable at the upper employment levels would require more education than Negroes, other minority races, and the economically disadvantaged whites were historically achieving.

The high school failure and dropout literally has had the door of economic opportunity close before him, barring him from that segment of living known as the "good life." That the disadvantaged have for years constituted a disproportionate majority of those teenagers doomed to a lower class existence, was well known. Equally well known was the fact that these adolescents were earmarked as early as their first years in school as most likely to be school failures. This diagnosis has been predicated less on family circumstances than on low achievement in primary school, particularly evident when compared to the performance by middle class children. How logical to have placed hope and faith in Head Start as the most promising long-range weapon in the War on Poverty through better educational opportunity.

The influence on the long-range intent of Head Start on its operation should not be overlooked. Ultimately, it was to contribute to the economic well-being of the deprived. Unlike the other educational programs for the disadvantaged administered by the Office of Education, it was administered by the Office of Economic Opportunity. Prekindergarten represented a critical point at which to break the poverty-education cycle:



While economic betterment might ultimately accrue for the children in the prekindergarten programs in this study, the program objectives were explicitly shorter-term educational goals. It is dubious whether research in the social sciences will, even in the distant future, be perfected enough to assess such a causal relationship, extending over a decade or two while separating out the influence of other factors. Such perfection would be a requirement in relating prekindergarten programs to school dropout, college entrance, occupation, and income. The need to be met by this study was for a more immediate evaluation of the programs' educational effectiveness.

By 1966, the desire for an appraisal of Head Start was being strongly voiced from several sources. The hundreds of millions of dollars appropriated by the Congress and the legislative authorization to continue support was one source seeking feedback on the program success. Although most Head Start programs were not operated by the public schools, the latter were expected to be more successful in educating the disadvantaged children who participated in these preschool programs. The educators in these schools were equally concerned with the preschool results achieved.

A third group was professionally interested in an assessment of Head Start programs.[1] They represented those who had established theoretical positions on deprivation and early intellectual development, and others who were advocating methodological approaches to compensatory preschool education based on, if not conflicting, at least contrasting educational philosophies. Most directly concerned were the organized groups representing the parents of the disadvantaged children.

These sources asked a variety of questions of an immediate and educational rather than of a remote and economic nature. What did the children learn from Head Start? Were they doing better in school as a result of Head Start? Were they now learning to read? Were they doing as well as the other children? Was intelligence being altered?

These were educational questions. They assumed Head Start to be an educational program with educational goals. How could the programs be considered a success if the children did not go on and succeed in primary school? Regardless of what claims were made for Head Start, could it be considered a success if the children did not go on and learn to read?

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[1] Harold G. Shane, "The Renaissance of Early Childhood Education," Phi Delta Kappan, Vol. L (March 1969), pp. 369ff.

These educational concerns were crystallized by the institution of Project Follow-Through as a companion program to Head Start. Several studies (Wolff, etc.) had shown no significant differences in later school achievement between disadvantaged children who did and did not partake of Head Start. The Head Start advocates proclaimed that the success they had achieved with the prekindergarten children had been dissipated by the schools' failure to follow up with special programs in kindergarten and first grade. Several studies predating Head Start (Deutsch, Gray, Weikart) were designed to assess the retention of prekindergarten effects in the primary grades. There was doubt about how much more successful the schools could be in educating the disadvantaged by the simple addition of a 7-week early summer program to the many years with which they had been working. In June 1969, Head Start was transferred from OEO to USOE. This removed any remaining doubt that prekindergartens for disadvantaged children as conceived in the 1960's were to be educational in nature with goals relevant to later school success.

This study, having its origin and sponsorship in educational institutions, was designed from the beginning to assess the immediate educational goals which were the objectives of the programs. In the early stages of designing the study, it was necessary to compile a list of these educational objectives. To enable later comparisons to be made,it was essential that the school districts agree on these objectives. Agreement was reached on five broad goals:

1. Increased capacity to learn
2. Improved social development
3. Better self-concept
4. Increased motor development
5. More positive attitudes toward school.

However, the programs to be adopted to achieve these goals were to be independently selected by each school district. It was the naive assumption of the research staff, responsible for the design of the study, that prekindergarten programs for the disadvantaged existed in packages to be picked off the shelves in the education market place. Once the districts had made their choices, the program treatments would be inserted into the design.

Distinct programs did not exist. Points of view on what constituted good early childhood education for the disadvantaged did, and they determined the type of program which evolved. In only one district was the program fairly well defined at the outset. In the brief time between the designing of the study (October 1964) and the opening of prekindergarten classes (September 1965), the participating districts were to experience, in making the decisions regarding program selection, what was to be experienced on a national level in implementing Head Start.

In December 1964, the Federal Government announced the availability of $200 million for Head Start programs, the bulk of which (90 percent) was to go for summer programs in 1965. Among the many preparations to be made were staffing of over 12,000 Head Start centers, providing the teachers for the 500,000 children who would participate, and selecting and equipping of the programs. A project of this dimension could not be undertaken de novo in so short a time. Nursery schools and day care centers, collectively referred to as the "early childhood establishment," were the only institutions which could achieve this feat.

Day nurseries had operated for a hundred years and nursery training schools for 40 years. They had previously responded to the national need for vastly expanded nursery centers during both World Wars and the Depression.

As did most of the nation, so did most of the school districts in this study turn to the established nursery education practices for guidelines to the programs they were to operate. Had the OEO turned to the public and private elementary schools they would have found them totally unprepared to assume the task and probably reluctant as well. With almost half the states still not providing financial aid for the operation of kindergartens, their public schools could hardly have been giving thought to the special education of disadvantaged 4- and 5-year-olds.

Had the OEO turned to the avant-garde educational researchers and psychologists who were espousing different programatic approaches to the problem than were nursery school educators, they would have found them even less prepared than the elementary schools to utilize the vast financial resources of Project Head Start. The writings of Deutsch were no match for Bank Street College, the Merrill-Palmer School, and Teachers College, Columbia University, the bastions of nursery education for decades, in giving direction to the task ahead.

However, as Head Start became an innovation of national stature, it touched a variety of institutions and agencies, it dealt with a problem interdisciplinary in nature, and it offered an arena to test the newest theories and technologies.

The avant-garde grew in number and challenged the nursery education "establishment's" application of an approach, developed over years of work with basically nondisadvantaged children for non-school objectives, to the problem of giving the disadvantaged child an educational head start. As the current study progressed, it too was caught up in the controversy between the nursery educationists and the cognitivists. A brief description of the positions of each is in order for a more complete understanding of the study.

Late 19th and early 20th century education was dominated by the "mental discipline" or "faculty psychology" school of thought. The purpose of formal education was to develop man's intellect and no more. In terms of contemporary terminology, it was strictly and solely cognitive education. Dewey's 20th-century writings democratized the educational function and gave it a social purpose. The same period saw the child development movement establish the dignity of childhood. Childhood was no longer viewed as the miniature form of or the incubation period for adulthood. The recognition of children's rights was manifested through child welfare and health agencies, antichild labor legislation, and compulsory school attendance laws. The child, as a pawn of adults, had been kept too busy serving adults and learning to become an adult to have enjoyed the natural freedom and pleasure associated with "being a child." The child development proponents the avant-garde of their day, were to restore as normal the child-like behaviors of children.

Not only did the child development movement affect primary schooling, but it influenced the practices of the newly emerging day care centers and nurseries. In opposition to the historically narrow focus of education, nursery education was to take as its charge and motto, "the whole child." Research was beginning to show the interrelatedness of the physical, emotional,social, and intellectual dimensions of behavior. Gestalt psychology was postulating the need to take account of the total person to understand his behavior and not just the narrow stimulus and response elements of association psychology. Equally basic to the nursery education position was the centuries-old tenet of Rousseau's naturalism which had its counterpart effect in Froebel's Kindergarten. In essence, it maintained that man's pedagogical efforts should conform to nature and not attempt to improve upon it. However, the anthropological studies of less civilized societies have relegated more and more of so-called basic nature and instinctive behavior to the byproducts of social culture and the immediate environment. The nursery educator's position maintains that programs for development of the child are to be in accord with the nature of the child and the natural environment in both their objectives and methodology.

The crucial issue then becomes determining the child's nature and the natural processes of development of his innate capacities. Is the child's nature that which emerges in an untethered and absolutely permissive environment? History has not afforded us the opportunity to observe many children reared in this setting nor even the contrived setting of an Emile. As for the few recorded "wolf" children, reared free from adult persuasion, their described behavior resembles more the subhuman than the human species.

The child's natural state and development may then be that which the nursery educator values as most desirous. This becomes an expression of an ideal which denounces the undesirable circumstances in our way of life for both child and adult. Particularly undesirable and therefore unnatural are the constant pressures our competitive society brings to bear from birth to death. Physical appearance, physical prowess, educational achievement, occupational level, social status, economic standing, and sundry other areas are the common pressure points of our society. Education is one of the leading arenas in which the child is forced to compete. For many, these struggles appear lost before they begin. For others, the "durm and strang" of the struggle produce the very inhuman conditions we are trying to overcome. To provide even a brief respite during the early years of childhood is an admirable goal. The question arises as to which comes closer to man's natural state, the reality of our society or the aspirations for a more Utopian form of life.

One further note will add to an understanding of the nursery education position and the approach taken with the Head Start program. It is a citation of the national functions nursery schools have assumed in the last 50 years and a testimony of the noneducational orientation of day nurseries. The words are those of their national association, the Department of Elementary-Kindergarten-Nursery Education, National Education Association:

Nursery schools in the United States receive their impetus in university centers where they were organized for the purpose of studying normal development of children. Day care centers or day nurseries arose two decades earlier in urban slum centers to provide for the essential needs of poor children. In the 50 years since these two types of programs were initiated, two major national crises instigated establishment of nursery schools for still other functions. The depression gave rise to WPA nursery schools for the purpose of feeding children and providing jobs for unemployed teachers. During World War II, the Lanham Act provided for the organization of nursery schools to provide care of young children so their mothers could become part of the needed work force for war industry. Parent cooperative nursery schools have grown by leaps and bounds, in part to give children some social experiences and in part to give parents opportunity to learn about modern ideas of child rearing. Since World War II, the number of proprietary nurseries has increased markedly, the majority serving the needs of working mothers. Church-sponsored nursery schools compose another group to serve still another function.

Along with these primary functions, all types of programs for young children have tended to take on some similar characteristics. Nearly all of them indicate they hold mental health and education as objectives for children. The terms nursery education and day care are now often used interchangeably. Nursery school teachers have learned to use similar language and terminology, though the sensitive listener recognizes that these do not have precisely the same meaning for all who use them. The terminology tends to be different from that of teachers of older children. The teaching and administrative personnel of all types of programs come together to some extent in local or national professional groups. On the other hand, each type of nursery school continues to have its own organization with its special interest and concerns.

Teachers share the common experience of working with young children but not common goals and purposes. Because of the different functions they serve and the different auspices under which they perform their work, they have widely varied backgrounds of education--both general and professional.

> . . . In general, education exerts least influence in, and indeed often has little awareness of or interest in, nursery education. Increasing the dialogue among these disciplines which impinge on nursery education is a major need, and education is the logical discipline to take leadership in bringing them together.[2]

Thus, these past 5 years, the approach to Head Start and the many prekindergarten programs sponsored by ESEA Title I has been predominately in keeping with the nursery education philosophy. The programs have not been geared to equipping the disadvantaged child with those cognitive (including language) prerequisites for later reading and school achievement success. Rather, their claim has been to have contributed to the total school adjustment of the child and thereby to have indirectly promoted academic learning; to have addressed the health problems, so much more prevalent among low socioeconomic children; and to have provided medical and dental treatment as well as food, exercise, and rest for the physical well being of children. The children of Head Start have been taught the protocol of group living and hygiene. New vistas and experiences have been made possible for these children through these preschool centers. Through the individual attention made possible in small groups, personal and emotional adjustments have been achieved. The child's language and general knowledge have been expanded as a result of these programs. Through these many achievements with the whole child, the Head Start program contends it has made him better prepared for the formal schooling he is later to receive.

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[2] Evangeline Burgess (ed.). Values in Early Childhood Education (second edition; Washington, D.C.: National Education Association, 1965), pp. 7-8.

Now to the approach of the so-called cognitivists. Although representing varying programmatic approaches, they are fundamentally in agreement that the preschool primary emphasis for the disadvantaged should be in the cognitive-intellectual-formal language-academic area (Bereiter-Engelmann, Weikert, Moore, Nimnicht, Deutsch, etc.). They do not deny the interrelatedness of physical-social-emotional-cognitive development in the functional behavior of the child. However, they do not attach equal weight to these areas in the compensatory educational programs advocated.

The cognitivists as educators and psychologists have historically concerned themselves more with the theoretical and experimental aspects of the physical-social-emotional-cognitive facets of human development than with developmental programs. At the preschool level in particular they have had little experience in designing and operating programs to effect behavioral changes. On the other hand, the cognitivist position is one formulated on the basis of past research and is empirically accountable.

The most active proponents of the cognitive approach, and thus the most frequent target of nursery educators, are Dr. Bereiter and Mr. Engelmann and their academic program. While their program would differ from other cognitive programs, the logic they have put forth is representative. They have presented this rationale quite forcefully in Teaching Disadvantaged Children in the Preschool. Some excerpts will convey the major points of their position.

For the lack of definite guides, preschool teachers across the country have fallen back on what they would like to think are 'tried and true' methods of nursery school education. It should be recognized that none of these methods have been tried for very long with disadvantaged children and that none of them have been proved 'true' in the sense of accomplishing the objectives of compensatory education. (Preface)

With no known exceptions, studies of 3- to 5-year old children from lower socio-economic backgrounds have shown them to be retarded or below average in every intellectual ability. ....What is more, the differences are largest in those abilities most relevant to success in school. (pp. 3-4)

. . . disadvantaged children of preschool age are typically at least a year behind in language development--in vocabulary size, sentence length, and use of grammatical structure. Indeed, in practically every aspect of language development that has been evaluated quantitatively, young disadvantaged children have been found to function at the level of average children who are a year or more younger.

The other area in which disadvantaged children seem to be especially retarded is reasoning ability or logical development. Here, too, the amount of retardation is typically a year or more.

Verbal and reasoning abilities--which may be combined under the general rubric of ability to manipulate symbols--have been found to be the major factor in academic achievement throughout the school years. Thus, from the point of view of success in school, disadvantaged children are retarded most in the areas that count the most (pp. 4-5).

All available evidence points to the conclusion that disadvantaged children fall further behind as they proceed through school. (p. 5)

From the beginning there is a lag in learning that must be overcome if disadvantaged children are to emerge from school with the same skills and knowledge as more privileged children. If the lag is to be made up during the school years, then schools for disadvantaged children have to provide higher-quality and faster-paced education than that provided for advantaged children. Another possible solution is to provide this kind of education before the school years--the motivating idea for preschool education for disadvantaged children. (p. 6)

> If the point is accepted that disadvantaged children are behind other children in certain developmental aspects, then it follows by simple logical necessity that they must progress at a faster than normal rate if they are to catch up. (pp. 9-10)
>
> More specifically, it means, in this case, focusing upon academic objectives and relegating all nonacademic objectives to a secondary position. (p. 10)
>
> . . .for the disadvantaged child's future, academic success in school is of such critical importance that any preschool program that fails to do all it can to ensure this success has failed the 'whole child.' (p. 13)
>
> Nursery schools have never been intended to achieve academic objectives in the way elementary schools do, and so it should not be surprising if the traditional nursery school structure is found not to lend itself very readily to such objectives. (p. 14)
>
> Taken together, these points indicate that radical departures from established practices of early childhood education are needed. (p. 19)

At the time this study was designed this controversy was not yet a major educational issue. The staff conducting the present study held no allegiance for any particular approach or program. Their focus was on learning whether any approach could be successful. The element of bias was initially absent. However, as a 4-year longitudinal study, the design called for data to be collected and analyzed at the end of each year. Each year the data were supportive of one side in the developing conflict between the two approaches to compensatory prekindergarten education. The study design was not altered as a result of either the growing difference of opinion or the early findings. However, this writer could not ignore the mounting evidence over this span of time. The data have biased his thinking and writing in this area. In the hope of influencing the approach of emerging programs during these years, this investigator has made known the preliminary results of this study in other reports and publications. Although some of the earlier reports will be repeated, the findings of the fourth year, some findings that had not been reported earlier, and a degree of comprehensiveness are the additional aspects of this reporting.

One final point demands attention. The investigator designed this study in keeping with the traditional demands of an experimental design. Experimental and control groups were randomly (statistical blocking) selected in the traditional mode. Comparisons were then statistically analyzed based on data collected in a pre-post model. The paradigm was one of the classic psychological designs.

As a result, the investigator overlooked the global intent of the educational program. Too late in designing the study was this oversight realized. Little consolation has resulted from the knowledge that the other studies of this problem have also erred in this regard. The intent of the compensatory preschool program was to close the educational gap between the disadvantaged and nondisadvantaged children. Hopefully, to provide a sufficient head start that lower and middle socio economic children might begin formal schooling on an equal basis. The success of the programs should be assessed by comparison of the performance of disadvantaged children after preschool with the nondisadvantaged children who are entering school along with them for the first time.

This comparison should have been central to the design of the study. Fortuitously, it was possible to make these comparisons on a smaller scale as a result of the inclusion of nondisadvantaged children by two districts as an aspect of their treatment.

As the report will later demonstrate, the gap between disadvantaged and nondisadvantaged children is sufficiently wide to permit the disadvantaged children to make statistically significant gains over children of like kind, and still remain educationally disadvantaged when compared to middle class children. This point should be noted not only in the future research and evaluation efforts of this type, but also in the level of program objectives and the approaches to their achievement.

CHAPTER II

PROJECT DESIGN AND PROCEDURES

The basic design for this study was a longitudinal experimental paradigm with built-in replications in which three successive groups of children (Waves I, II, and III) would be pretested, assigned to experimental and control treatments, posttested, and followed into kindergarten, first, and second grade.

The use of a longitudinal design is essential if there is to be any assessment of long-range effects of early education. Similarly, replication is necessary to verify findings and to allow for both the profiting from experience and the minimizing of Hawthrone effects which come from the repetition of research efforts. At the same time, a long-term evaluation by its very nature poses the problem of changes in staff, administration, and subjects and, in some instances, a certain amount of discontinuity in philosophy and activity. In this project, with several school districts participating, the incidence of such casualties was compounded.

The number of districts changed between the initial pretesting and the start of the first school year by the first wave of prekindergarteners. One of the eight districts that had agreed to pursue the study withdrew to operate its prekindergarten programs under OEO's Project Head Start. The lateness of this action did not permit an immediate replacement, but a new district was added in the second year of the project.

Of the 14 teachers originally assigned to the prekindergarten classes, only six were still teaching in the third year. Also, the number of teachers fluctuated from year to year with changes in the number of classes involved in two of the districts. Similarly, only three of the original 15 research team members, school district administrators, and research specialists held their same positions in the final year of the study. With respect to the project sample, each year saw a decrease in the number of children available for followup testing.*

In addition to the inevitable turnover that comes with a project of extended duration, there were also modifications in and departures from the original plan for the conduct of the study.

The initial proposal for this study of Prekindergarten Programs for the Disadvantaged listed four major objectives:

1. To determine the effectiveness of preschool programs in achieving five goals
    a. Increased capacity to learn
    b. Improved social development
    c. Better self-concept
    d. Increased motor development
    e. More positive attitudes toward school.
2. To relate the variables in several prekindergarten programs to the degree of success achieved with each of the five goals.
3. To identify teacher and teacher-aide qualities and practices which differentiate successful and unsuccessful programs.
4. To determine whether the experimental groups maintain any superiority achieved in prekindergarten during the subsequent years (in kindergarten, first, and

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*Appendix A, Sample Attrition by Year.

> second grades) and to describe the kinds of educational provisions under which the experimental children continue to surpass the controls and those under which they lose their advantage.

Specific plans and evaluation techniques were designated for some of these objectives while others required developmental efforts.

The first major change in the project study came in a narrowing down of efforts to evaluate the effectiveness of preschool programs in achieving their defined goals. Because of problems in instrumentation and the magnitude of the testing task, it was decided to concentrate on the measurement of capacity to learn, language development, self-concept, and physical growth. Social development, motor development, and more positive attitudes toward school were eliminated as objectives to be measured not because they are unessential goals of early education, but because increased capacity to learn, greater language development, and better self-concept were seen as having priority in terms of school readiness which is the critical aim of prekindergarten programs for the disadvantaged.

With respect to the second objective, to relate variables in different programs to the degree of success achieved, it was found that there was less variety among programs than was anticipated in the design of the study. This was particularly true of the program duration. All of the districts chose to operate half-day programs during the regular school year, rather than 6-week summer programs, 12-month programs, or full-day sessions. One of the districts had four class sessions per week with the fifth day devoted to teacher-parent conferences and home visitations. Diversity among the programs did come in activities and areas of emphasis. These will be detailed in Chapter III, The Programs.

As suggested by the account of change in the course of the project, the third project objective, the identification of specific teacher qualities and practices which would differentiate successful and unsuccessful programs, was made difficult by the turnover in teaching personnel. An effort was made to obtain overall teacher ratings from those who observed the classroom programs and to relate these global evaluations to performance on the pupil evaluation measures.

Finally, the control of followup experiences to determine the conditions necessary for maintaining prekindergarten achievements proved an impossibility. No special classes were established within the districts for any of the prekindergarten participants; all of the children were absorbed into the regular kindergarten and elementary programs. Moreover, although it was anticipated that all experimental and control children would be attending the neighborhood schools where the prekindergarten classes were held, this was not the case. With the dispersion of the project population among many schools and classes, the definition and distinction of followup experiences became a Herculean task beyond the resources of the project. Moreover, this scattering so restricted the sample size for any given classroom experience that any statistical analysis would have been meaningless. In view of these difficulties, and in order to maintain as much of the project population as possible, all children remaining in the school districts were included in the followup testing.

In spite of the modifications noted, the original design of the study remained intact throughout the 4 years.

Procedures

Selection of the Sample

The basic criterion for the selection of children for the project sample was disadvantagement as indicated by the father's occupational rating on the Warner Scale (categories 5, 6, and 7). If the father was absent from the home, the occupation of the mother or receipt of welfare was used as an alternate index. In two of the districts, nondisadvantaged children were included in the project sample in order that the mixing of children of differing socioeconimic backgrounds could be part of the experimental treatment. Occupational ratings 1 through 4 on the Warner Scale were designated as nondisadvantaged and used as the criterion for the selection of these subjects.

Additional criteria for inclusion in the project sample were:

1. Age $3\frac{1}{2}$ to $4\frac{1}{2}$--eligible for kindergarten in September of next year
2. Free from gross physical and psychological handicaps
3. English-speaking
4. Toilet trained.

To obtain the required number of project pupils, the school districts surveyed their communities to identify children who met the selection criteria and whose parents were willing to admit them into the experimental programs. Participation in the study was, of course, voluntary, and the possibility of the child's being assigned to a control group was made known in the recruitment process.

Where possible, a pool of subjects somewhat larger than that required by the project design was recruited and pretested, anticipating the attrition that did occur. A total of 2,342 subjects were initially seen; a very small number of these were untestable because of their inability or unwillingness to respond.

In the initial screening of subjects, data were collected on parental occupations, father's and mother's education, annual income, family size, and siblings* through an interview with the child's parent or guardian. The data were verified and changes in family circumstances noted in a second interview at the time of posttesting. Analyses of these demographic data are found in Chapter IV, The Project Population.

Following pretesting with the Stanford-Binet Intelligence Scale and the Peabody Picture Vocabulary Test, the children in each school district were paired on IQ, sex, race, and Warner Rating and randomly assigned by statistical blocking to experimental and control groups. The experimental children attended the prekindergarten classes while the control children did not.

The random assignment of children by the research staff was perhaps the most difficult element of the design to be imposed on the participating districts. In some cases considerable pressure was exerted to have certain children included in the experimental classes, as in the instances where twins were by chance separated in assignment to experimental and control groups. At the same time, efforts were made to placate the parents of control children and assure their continued cooperation. In no case, however, was a random assignment changed.

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*Appendix B, "Pupil Identification Schedule"

It was possible in this study to insist on the randomization for several reasons. The study was being conducted by a strong State education agency; approximately 90 percent of the school districts' prekindergarten program budgets were supported by the study; there were insufficient funds to have included all the children, and the school district officials were free from the onus of responsibility in the selection of the children.

Program Observations

In the spring of each of the 3 years of the program, a team of 10 observers working in pairs visited each of the teachers in the prekindergarten study. The observers were a diverse group including specialists in early childhood education, school administrators, school psychologists, and research workers. The procedures followed by these observers in making their reports varied from year to year.*

In the first year, the emphasis was on the teacher's performance in terms of clarity of purpose, preparation, motivation, knowledge of learning principles, and individualization of instruction. The observers were asked both to rate the teachers on these factors and to do a paired comparison evaluation of the 14 teachers in the project on the same five factors. The observers were also asked to make comments on the programs observed. This procedure gave insight into the programs through the perspective of teacher qualities, but it did not define the program activities to the extent desired.

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*Appendix D for observation instruments.

In the second year, the observers were asked to make a running narrative of classroom activity during their visits and to cover such points as: teacher interaction with pupils and with aides and assistants, evidence of planning, techniques of classroom control, the use of materials, and the preparation of special materials. This narrative was to be factual and objective, without qualitative comments. The observers were given an opportunity to indicate their evaluative reactions by ranking the teachers from the most outstanding to the least competent. This second-year procedure created a voluminous body of data which was striking both for its breadth and variation, and for its sense of continuity and unity amid diversity. The narrative reports clearly reflected the differing orientations and backgrounds of those who wrote them. But, with all the varying points of view, consistencies in teacher behavior and program operation were apparent.

The narrative reports of the second-year observations provided the raw material for a structured Classroom Observation Schedule which was used in the third year of the study. This instrument covered four major topics: the Daily Program, Equipment and Materials, Teacher Practices, and Distinguishing Characteristics of the Program. Under "Daily Program" was a list of 16 common prekindergarten activities with space for indicating order of occurrance and time spent. Under "Equipment and Materials" were 30 items that might be found in a preschool classroom with space for checking both their presence and their use during the observation period. Both of these sections provided room for additional entries. The third section on "Teacher

Practices" listed a series of descriptions for six aspects of teacher behavior: classroom organization, use of supporting staff, discipline, structuring the program, encouraging language development, and reacting to pupil needs. The observer was to check the statement in each category which best described the teacher observed. Finally, the observer was given an opportunity to comment on the distinguishing characteristics of the prekindergarten program. The observers in the third year also ranked the teachers following the same procedures used in the second year. As might be expected, the procedures of the third year, evolving out of the less structured prior experiences, provided data that were more readily comparable and quantifiable.

Program Reports by Teachers

The same narrative descriptions that formed the basis for the Classroom Observation Schedule also provided items for a Q-Sort in which both the administrators and teachers indicated the frequency with which various activities occurred in their prekindergarten programs. Before the Q-Sort was administered, the teachers were asked to write their own program descriptions so that a comparison might be made between subjective and objective reports.

Testing

As indicated in the general discussion of the project design, the measurement of the effectiveness of the prekindergarten programs focused on three of the program objectives: increased capacity to learn, greater language development, and better self-concept. In the followup evaluation the objectives were translated to school readiness and achievement. The instruments used in the evaluation and the schedule for their administration are given below. Each test and its administration will be individually described.

Test	Objective	Test Basis	Time of Administration
Stanford-Binet Intelligence Scale Form LM (1960) Revision	Capacity to learn	Pretest-posttest	Prior to pre-k End of pre-k year
Peabody Picture Vocabulary Test	Language development	Pretest-posttest	Prior to pre-k End of pre-k year
Illinois Test of Psycholinguistic Abilities (5 subtests)	Language development	Posttest	End of pre-k year
Learner Self-Concept Test	Self-concept	Posttest	End of pre-k year
Metropolitan Readiness Tests	School readiness	Followup	Spring of kindergarten year
Metropolitan Achievement Tests, Primary I Battery	School Achievement	Followup	Spring of first-grade year
Metropolitan Achievement Tests, Upper Primary Reading	School Achievement	Followup	Spring of second-grade year

Stanford-Binet Intelligence Scale. The short form of the 1960 Revision of the Stanford-Binet Intelligence Scale was used as a pretest and posttest measure of capacity to learn. This well-known and widely used individualized test was administered by a team of school psychologists who visited each of the participating districts.

Test administration, in view of these subjects, was particularly critical to the validity of the data. A generous research budget permitted the selection of experienced and sensitive examiners to administer the individual testing. Conditions at the local testing sites were made as pleasant as possible. For the most part, individual appointments for testing were scheduled to minimize the waiting time.

Warmup areas were used in which the children, with their parents, school officials, and examiners present, were able to play prior to testing. Children tested were given lollipops and returned to the warmup area. This served as an incentive for children waiting to be tested. Special efforts were made to reduce anxiety during pretesting since this represented for most children a first contact with school and strangers. In a few cases where it was necessary, children were tested at home or retested with a different examiner.

In general, pretest subjects were randomly assigned to examiners. At the time of posttesting, at the end of the prekindergarten year, the children were stratified by pretest examiner and assigned proportionately to the posttest examiners. In order to control examiner bias on the posttesting, they were not aware of the child's pretesting results, who had examined him, and whether he was an experimental or control subject. All examiners tested in all districts with approximately equal proportions of the sample of children.

The makeup of the testing team changed in the course of the project as shown in the following table.

Stanford-Binet Examiners by Year

1965	1966	1967	1968
A (M)	A (M)	--	--
B (M)	B (M)	B (M)	B (M)
	C (M)	C (M)	--
		D (F)	D (F)

A study was made of the effects of examiner differences on the Stanford-Binet and has been reported elsewhere (Di Lorenzo and Nagler).

Peabody Picture Vocabulary Test. The PPVT, an instrument which has been frequently employed in the evaluation of early education for the disadvantaged, was used as a pretest-posttest index of language development. The test measures receptive vocabulary through picture identification and requires no verbalization on the part of the child. In the first year of the project, the test was administered by the Stanford-Binet examiners. In subsequent years it was administered by graduate students who were included in the testing team. The two forms of the test, A and B, were used alternately by each examiner in pretesting. In the posttesting, subjects pretested with form A were given form B and vice versa.

Illinois Test of Psycholinguistic Abilities. The ITPA was used as a posttest measure of language development at the end of the prekindergarten year. Five of the 10 subtests which comprise the 1961 experimental edition of the test were given:

1. **Visual Decoding**
2. **Auditory-Vocal Association**
3. **Vocal Encoding**
4. **Visual-Motor Association**
5. **Auditory Decoding**

The subtests were selected on the grounds that they had the greatest relevancy to the objectives of the prekindergarten programs. Those not used either duplicated the Stanford-Binet and the PPVT or were judged inappropriate.

The ITPA was given by the Stanford-Binet examiners after the administration of the IQ test.

Metropolitan Readiness Tests. The MRT was used as a followup measure of school readiness, being administered to subjects at the conclusion of their kindergarten year. The tests included in this battery are:

1. Word Meaning
2. Listening
3. Matching
4. Alphabet
5. Numbers
6. Copying

This well-established battery of tests was selected to provide a measure of the carryover effects of the prekindergarten programs on general school readiness one year later. The tests were administered by graduate students to groups of six to eight subjects.

Metropolitan Achievement Tests--Primary I Battery. This battery was administered to experimental and control subjects at the end of first grade to provide a followup measure of the effects of prekindergarten experience on school achievement 2 years later. Graduate research trainees administered the tests to groups of 15-20 children at a time. The battery consists of tests in word knowledge, word discrimination, reading, and arithmetic.

Metropolitan Achievement Tests--Upper Primary Reading Battery. This battery includes tests in word knowledge, word discrimination, and reading sentences and stories. It was employed in the study to provide a followup measure of the achievement of prekindergarten subjects by the end of second grade, 3 years after their prekindergarten evaluation. The tests were administered by graduate research trainees and second grade teachers.

Statistical Analyses. On repeated measures (S-B and PPVT) Fisher's "t" test for differences between group mean changes was used to determine statistical significance. On post measures only (ITPA, MRT, and MAT) analysis of covariance*, with single and multiple covariates, was used to test for significant F ratios by treatments, districts, sex, and race. F-ratio tests for first and second order interactions are reported at the .10 and .05 levels of significance.

A variety of correlational analyses (partial, multiple, product-moment, biserial and point-biserial, eta, and concordance) were used to select the covariates and determine test validity and reliability.

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*B. J. Winer, Statistical Principles in Experimental Design, (New York: McGraw-Hill), pp. 578-621.

CHAPTER III

THE PREKINDERGARTEN PROGRAMS

The prekindergarten programs in the eight participating districts had common goals: (1) increased capacity to learn, (2) greater language development, (3) better self-concept, (4) increased motor development, and (5) more positive attitudes toward school. However, each of the districts was free to develop its own program to fulfill those goals.

There were three factors determining the form and content of the programs: traditional nursery school programs with their emphasis on free play and socialization, kindergarten programs with their attention to group experiences and their anticipation of first grade activities, and new techniques and materials for working with the disadvantaged. In view of the recognized deficits of disadvantaged children, an effort was made by the Project Director to encourage activities for language and cognitive development. The resulting programs had many common elements and some marked distinctions.

The purpose of this chapter is to present as complete and accurate a description of the prekindergarten programs as they actually operated rather than as they were planned to operate. Under the best of circumstances it is exceedingly difficult to isolate the unique aspects of a series of programs which, in general, are conducted under similar organizational frameworks, are carried out by teachers with relatively similar training and experience, and are devoted to similar goals. In the present study this difficulty was exacerbated by a number of factors which impinge upon the validity of the descriptions contained in this paper. These factors were as follow: The possibility of differences in perception on the part of observers representing a wide range of educational occupations and early childhood philosophies; the problem of distinguishing among teacher competency, teacher style, and programs; and the difficulty of categorizing programs which have been evolving over a 3-year period.

The emphases and orientations of the various programs reported herein have been culled from statements made by the teachers concerning their activities and approaches, a Q-sort of the frequency of activities completed by teachers and directors (Appendix P), and from the reports of outside observers who were assigned the task of visiting the classrooms involved in the various programs, and recording their impressions of the activities and approaches being utilized. Since it was believed that the observers were in a much better position to be impartial and objective, their reports have been employed as the major source of the program descriptions.

In general, the observational plan developed by the chief investigator was followed throughout the 3 years of the investigation. The plan called for pairs of observers representing a wide spectrum of backgrounds, namely, early childhood personnel, school administrators, school psychologists, educational researchers, college and university staff members, and State Education Department personnel, visiting each classroom involved in the study over a 7-week period in the spring of 1966, 1967, and 1968. The pairs of observers were requested not to discuss their observations with one another. This type of pairing enabled the researchers to compare the similarity of descriptions of the paired observers.

During the 3 years of the study, the procedures for recording observations and impressions were changed. During the first year, the observers were asked to perform three tasks. They were requested to assess each teacher's performance on a scale from 1 to 5 on each of the following dimensions: clarity of purpose, preparation, motivation, knowledge of learning principles, and individualization of instruction. They were also asked to employ the paired comparison system to compare each teacher with every other teacher on the five dimensions listed above. Finally, each observer was urged to include written comments about the most salient characteristics of the teacher's performance.

During the second year, observers were asked to carry out two tasks: To rank each of the 17 teachers observed on their general teaching effectiveness and, secondly, to write out a running description of each teacher's classroom behavior. Focus was placed on teacher interaction with pupils in groups and individually, interaction with aides and assistants, evidence of planning techniques of classroom control, physical organization of the classroom, use of materials, preparation of special materials for a given purpose, sensitivity to feedback, and awareness of children's developmental status.

In the third year, the observers had two tasks to complete: First, ranking of teachers as in the second year of the study; and, secondly, completing the Classroom Observation Schedule for the teachers observed (Appendix D). The Schedule was composed of three sections. The first section contained an extensive list of possible classroom activities. The observers were asked to record the number of minutes devoted to each activity and the sequence of the activities. The second section listed types of equipment and materials found in prekindergarten classrooms. The observers were asked to check the equipment found in each classroom as well as the equipment used during the observation. The third section of the Observation Schedule included a series of descriptions of six aspects of teacher behavior, namely; classroom organization, use of supporting staff, discipline, structuring program, encouraging language development, and reacting to pupil needs. The observers were asked to check one of the series of descriptions in each of the categories which best described the practices of the teacher.

In the program orientation component, each observer was requested to check one of the following categories for each teacher:

a. The children engage in a variety of activities without discernible objectives and unrelated to apparent needs.

b. The teacher emphasizes diverse experiences for general enrichment. She relies primarily on children's responses to determine her teaching goals and strategies at a given time.

c. The teacher emphasizes specific instructional goals. She focuses attention on the objective through defining the time period for the activity, using special materials, and prescribing the child's responses.

d. The teacher gives equal attention to enrichment experiences and instructional activities for specific learnings.

In analyzing the data with respect to structuring of the program, it was apparent that a group of the teachers was rated by most of the observers as emphasizing specific instructional goals as described in option c. The observers who did not check option c to describe these teachers almost always chose option d to describe them.

A number of other teachers were described by most of the raters as emphasizing children's responses and diverse experiences as described in option b. The observers who did not check option b to describe these teachers usually chose option a.

If one were to assess the programs on a structural dimension from highly structured to unstructured on the basis of the observers' responses on the observational rating scale, the rankings would be as follow:

High Structure	1. Mount Vernon 2. Schenectady 3. Cortland
Moderate	4. Yonkers 5. Hempstead
Low	6. Spring Valley 7. Greenburgh 8. Long Beach

In the part of the rating scale dealing with the encouragement of language development, the observers were asked to check one of the following options for each teacher:

a. There is no special provision for language activities. Language development is incidental to a general enriched experience program.

b. The teacher makes provision for language development through discussions, question and answer periods and planned exposure to new concepts through books, pictures, and other special materials.

c. The teacher gives the children controlled practice in the use of selected terms and concepts in order to establish specified language patterns.

In analyzing the data with respect to encouraging language development, it was readily apparent that the majority of observers agreed that seven of the teachers were best described by option c. The observers who did not choose option c to describe these teachers, with a single exception, always chose option b. All of the teachers from Cortland, three of the teachers from Mount Vernon, and one of the teachers from Schenectady and Yonkers were included in this group.

The analyses of the data for language development also demonstrated that the observers, in general, chose option a to describe the teachers from Long Beach, Greenburgh, and Spring Valley. Any observer who did not choose option a to describe these teachers always chose option b.

If one were to assess the school systems on a structural dimension in language experiences ranging from the highly structured to the unstructured on the basis of the responses to the Classroom Observation Schedule, the rankings would be as follow:

High	1.	Cortland
	2.	Mount Vernon
	3.	Schenectady
	4.	Yonkers
Moderate	5.	Hempstead
Low	6.	Greenburgh
	7.	Spring Valley
	8.	Long Beach

These two dimensions, along with other cognitive activities, became the differentiating elements of the programs. The programs polarized on these aspects over the years as the early childhood-cognitive difference grew as an educational issue. On the basis of both the quantitative outcomes of the objective evaluations and content analyses of subjective reports, the programs were rated as to the degree to which they were cognitively oriented and structured. The ratings of the eight district programs on these dimensions are shown in the two-way classification model in figure 1.

Figure 1

Two-Way Classification of School District Programs
on
Cognitive-Language Orientation and Structure

Cognitive-Language Orientation	Structure		
	Low	Moderate	High
High		Yonkers	Mt. Vernon Schenectady Cortland
Mod.		Hempstead	
Low	Greenburgh Spring Valley Long Beach		

Inspection of figure 1 suggests an association between structure and cognitive-academic orientation which leads to the single program descriptor, cognitive-structured. The definition of this descriptor and its opposite, noncognitive and unstructured, will be better understood upon reading the descriptions of the individual program for each of the eight districts. In general, it may be said that the more cognitive-structured programs devoted more time to higher-level intellectual operations such as drawing inferences, making comparisons, and conceptualizing relationships rather than to naming, labeling, and simple identifications. They also stressed skill development, visual discrimination, and language usage. Furthermore, they relied on planned, sequential activities to achieve these ends more than on informal and incidental learning. It should be noted that no program was without some cognitive activities and that even the most unstructured program had some sort of routine or schedule as suggested by the enumeration of program commonalities.

As noted, the programs in the eight districts had much in common. With one exception they operated on a half-day schedule during the regular school year; the sessions were usually 2½ hours in length.

The number of pupils assigned to each classroom did not vary greatly. Over the 3-year period approximately 90 percent of the classrooms contained between 12 and 18 pupils. No total class group exceeded 23 (with an aide), and none had fewer than 10 pupils.

An analysis of the data concerning the teachers who participated in the study during the 3 years indicated that every one of them had obtained master's degrees. In two of the first 3 years of the study, every teacher was either permanently or provisionally certified by the State. In the other year, two of the teachers from Mount Vernon School District were not certified. The teachers varied in age from 22 to 51, and in experience from 0 to 19 years. The vast majority of teachers, over 80 percent, were married and had fewer than 6 years of teaching experience.

Certain activities were noted in every classroom by virtually every observer. Such activities as free play, storytime, snack, toileting, group discussions, date and weather checks, and roll-taking fall in this category. Certain other activities were much more common in some districts than others.

This was particularly true for certain cognitive activities. The observers repeatedly checked such activities as number activities, language exercises, readiness activities, and concept development in all the classrooms in Mount Vernon, Schenectady, Cortland, and Yonkers, whereas, these activities were never checked for the classrooms in Long Beach. The frequency and duration of these activities were quite limited in Spring Valley and Greenburgh and moderately limited in Hempstead.

The "Equipment and Materials" check list included 30 types of equipment and materials which might be found in prekindergarten classrooms. There were blank spaces in which the raters could write in types of equipment and materials present, but not listed. The raters were asked to place one check next to a piece of equipment if it was present in a classroom, and to place two checks if the equipment was used.

Certain equipment and materials were common to virtually all the classrooms. Such equipment and materials as blocks, books, record players, paints, crayons, scissors, clay, picture puzzles, puppets, wheel toys, film projectors, and color charts fell in this category. Dressup clothes and housekeeping corners were observed in all the classrooms in all the school systems except Mount Vernon. In Mount Vernon not all classes featured housekeeping corners and none of the classrooms was observed as having dressup clothes. Certain other types of equipment and materials were present and used much more frequently in some districts than in others. Observers repeatedly checked such academically oriented equipment and activities as flannel boards, lotto games, pupil name cards, ditto materials, and readiness workbooks as being much more common in some districts than others.

The flannel board was used quite often in the Cortland and Yonkers districts. It was used occasionally by the Mount Vernon and Schenectady Schools, and rarely by the other four districts. Lotto games were very popular in Cortland, Yonkers, and Mount Vernon. They were observed quite frequently in Spring Valley, infrequently in Hempstead and Greenburgh, and never in Schenectady and Long Beach. The blackboard was used quite frequently in Mount Vernon and Schenectady. Use of the blackboard was observed occasionally in Cortland and Yonkers, rarely in Hempstead and never in Greenburgh, Spring Valley, and Long Beach. Pupil name cards were frequently observed in use in Mt. Vernon. Use of these cards was observed a number of times in Schenectady, Cortland, and Hempstead, rarely in Yonkers, and never in Long Beach. The use of name cards varied widely within the districts of Greenburgh and Spring Valley. Ditto sheets were virtually never used except in the classrooms in Mount Vernon. According to the observers, readiness workbooks were used extensively in Schenectady, moderately in Hempstead, rarely in Yonkers, and never in the other school districts.

The following descriptions are intended to highlight the distinguishing elements of the individual district program. They are derived from the several sources described: the reports of observation teams which visited the classroom each year, teacher narratives, and a Q-Sort analysis of program elements done by both teachers and administrators.

Schenectady

The Schenectady program was perceived by the observers as being the most structured of the eight in terms of activities being planned and directed to meet specific instructional goals. The objectives chosen for emphasis were cognitive-academic skills, language development, and reading readiness. Comments made by the observers included "well organized and structured classroom," "orderly, planned, and clear about goals," "teacher directed," and "heavily weighted with language activities."

The Schenectady program functioned in two schools. One had morning and afternoon classes; the other had a single morning class.

The distinctive aspect of the Schenectady program was the emphasis on reading readiness and early reading. Readiness workbooks and beginning reading materials from basal reading series were used on an individual basis, with children progressing at their own rate. The children were taught to recognize letters and words and to sound letters. They were given new words printed on 3 x 5 cards as "homework," and words learned were reviewed by flash card recognition. Other activities pursued on an individual basis were color recognition, counting, relating stories, and matching objects. Sometimes Frostig Visual Discrimination Materials were used with small groups of children.

The teacher's individualized work sessions of 5 to 7 minutes per pupil came during free play time, the first hour of the daily schedule. During this time, the teacher aides might also work with individual children on tasks such as color or letter identification and printing.

Free play activities included playing house, dressup, block building, exercise equipment, coloring, painting, and working with puzzles and manipulative toys.

The large group activities which made up the balance of the Schenectady program were divided between specific cognitive activities and more traditional ones such as games, storytelling, singing, and handcrafts. There were also snack and rest periods, and library times during which children looked at books.

In the large group activities, a calendar was used to teach months, days, and counting. There was blackboard instruction in letters and numbers. For example, the teacher would print a letter (upper and lower case), sound the letter, and have the children dictate a list of words with that beginning sound. A flannel board with Instructo Materials was used to teach various opposites such as open-shut, fat-thin, and tall-short. New vocabulary might be introduced with the picture plates from the Peabody Language Development

Kit. Use was also made of Bereiter-Engelmann techniques to teach concepts to the total group. Complete sentences were stressed in these and other language activities. Printed name cards were used for role taking and helper assignments.

Teachers in the Schenectady program kept records of pupil progress, particularly of the work covered in individualized instruction.

Cortland

Cortland was seen by the observers as the district which was most structured in its efforts to encourage language development. It also ranked high in terms of the overall structuring of the program.

The program was described as "structured" and "academically oriented" with "special emphasis on concept, language, and number development." Observers also noted "specific objectives," "organization," and "activities which appeared to be spontaneous interests but which were formed around a planned stimulus."

The prekindergarten classes at Cortland, while sponsored by the City School District, were held at the Demonstration School of the State University College. There were four prekindergarten classes each year with two teachers assisted by two language specialists. The teacher and assistant in each classroom worked as a team in the planning and conduct of the program.

The special provisions for language development in the Cortland program were small-group sessions, 5-10 minutes in length, conducted by the language specialists during the 40-minute free play period at the beginning of each class meeting. Language activities in these sessions were of two types: Language Pattern Drills and Discussions. Both language specialists used both techniques, but children in a given class received only one type of instruction or the other so that there could be a comparison of the relative effectiveness of the two approaches. Morning and afternoon groups were switched at midyear to control the effects of time of day on the results of the two types of instruction. Language groups of three or four children were formed on the basis of individual progress and need, and children might be shifted from one group to another during the year.

The Language Pattern Drills incorporated the materials and procedures devised by Bereiter and Engelmann at the University of Illinois. These are structured activities designed to teach singular and plural forms, negatives, directions, comparisons, and discriminations in color and size. The Pattern Drills called for both group responses, in which the three or four children in the group chanted the answers, and individual participation. The use of complete sentences was stressed in both the Language Pattern Drill instruction and in the Discussion groups. Various stimuli were used for the discussions including a commercial series of pictures, pictures from magazines, and objects assembled by the language specialists. The purpose of the discussions was to provide experience with specific concepts, drawing inferences, making comparisons, and so forth.

Language activity in the Cortland program continued throughout the day with a noticeable effort to insure opportunities for verbalization and vocabulary building both in teacher-pupil interactions and group discussions. One teacher prepared pictures of household objects and rooms with magazine cutouts and worked individually with children on these identifications and other concepts. The teacher kept a record of words known by each child so that individual attention could be given as needed. The word list included food, colors, prepositions, and directions. Both teachers maintained individual pupil records showing the children's mastery of concepts and reportedly used this as a guide in planning their individual pupil contacts during free play sessions and rest periods. There were specific large group activities for concept development such as the use of Instructo Materials to teach the concepts of similarity and difference. At snack time the teachers sat with the children and directed the conversation on a topic chosen in advance.

Listening as well as speaking was given prominence in the Cortland program. The story hour, listening to records, and like activities which were part of the daily program were not so different from activities in other programs. There did seem to be a difference in the purposefulness with which they were planned and the intensity with which the pupils were involved.

Number work was given attention in a special program during second year. Some of the children had structured lessons with Piagetian conservation tasks while the others had special practice in counting.

Practice with numbers was made a part of many activities from snack time to nature walks. Children were exposed to names and numbers in identifying the day of the week and date in the opening exercises. Printed name cards were used for helper assignments, and a teacher-devised alphabet-bingo game was used with small groups during free play time to teach letters.

Science activities played a substantial part in the Cortland program. They included demonstrations of magnets and floating and sinking objects, planting seed, and learning the parts of the body. Science and social studies topics provided themes around which several activities were focused. Thematic units were used so that bulletin board materials, library books, and displays would be concentrated on one topic such as ships, animals, or the postal service. In the latter instance, the children "wrote" letters, and members of the class served as postal clerks, mailmen, and so forth. When the thematic unit was the farm, activities included building a model farm with blocks, listening to a farm story, playing "Farmer in the Dell," and listening to "Old McDonald Had a Farm."

The materials available for free play in the Cortland program included a doll corner, dressup clothes, hammer and nails, nuts and bolts for manipulation, puzzles, crayons, clay, handcraft materials, and a tub of water with containers for pouring. There were also dishes of dry rice and macaroni and jars with different spices that children used to develop tactile and olfactory discriminations. Books were available in the room and could be taken home by the children; the children also made visits to the school library.

Mount Vernon

The Mount Vernon program was rated as one of the most highly structured in the project. Throughout the 3 years, observers referred to its cognitive orientation and its emphasis on perceptual discrimination, letters, numbers, word identification, and word building.

The Mount Vernon program was distinctive in two ways: first, in its avowed Montessori approach and second, in its use of teaching machines for introducing letters and reading.

The format of the program varied from year to year. In the first year, six classes were held for 1 hour per day with 10 children in attendance in each class. In the second year, there were three classes that followed in this pattern while two others met for regular half-day sessions with 15 children each. In the third year, all classes met for a half day. The classroom materials and the program content were much the same from year to year except that the half-day sessions included rest periods, snack periods, and gym periods.

The Mount Vernon program made use of traditional Montessori materials--form boards and stencils, geometric shapes, button frames, color chips, textured items to develop tactile discrimination, graduated cylinders, sandpaper letters, the brown stair, counting beads, slate-top tables, and the like as well as some recent innovations such as Language Lotto. Conspicuous by their absence from most of the Mount Vernon classrooms were the usual doll corners, dressup clothes, and wheel toys. The gym used for the exercise period did have a geodesic dome for climbing, a wagon, trikes, a teeter-totter, and other portable playground equipment.

In Mount Vernon, the usual free play of most prekindergarten programs was replaced by a "work" session in which children were free to choose their own tasks--drawing, measuring, making puzzles, cutting out and pasting pictures, and using any of the Montessori materials. The children were encouraged to print letters and their names; they made use of ditto outlines to form letters. The children worked alone or in pairs. The teachers and their assistants worked with individual children or in small groups. Sometimes they guided children in the use of the materials they had chosen; sometimes they introduced the children to new tasks. During a work period, a small group of children might work on number recognition by matching objects and numbers or by playing "go fish" with magnetic numbers. Attention was given in a similar way to colors and shapes. Story groups would be formed, and a small reading group might grow spontaneously to include the whole class. Large group activities would include show and tell time, singing, listening to music, and food tasting. In discussion groups and other activities, an effort was made to have the children use complete sentences. Some teachers were also rigorous in correcting grammatical errors.

The machine teaching aspect of the program changed in the course of the project. In the first 2 years, the Edison Responsive Environment Machine (the Talking Typewriter) was used. Only one machine was available at the outset of the project but, by the end of the second year, there were four. During the third year, a less complex mechanism, the START Machine was introduced and this was used exclusively in the final year of the study. Each child usually spent

5 to 10 minutes per day at the machine. In the early days of the program, when just one ERE machine was available, usage was dependent on the child's spontaneous interest. As the number of machines increased and as programmed materials were developed, the procedure became more formalized. A schedule was followed and a record of each child's activity and progress was kept. The programmed materials introduced the children to letter shapes and sounds through the medium of stories. One, for instance, dealt with "The Five Little Vowels." Both the ERE and START machines combined visual and oral presentation of materials and called for a response from the child. With the typewriter the child would press a letter on the keyboard; with START machine he would be confronted with a multiple choice item in a viewing panel and would have to depress the panel at the right point for the machine to proceed. The programmed materials developed in Mount Vernon did not make full use of the capabilities of the ERE machine; that is, they did not require the child to type letters or words.

The atmosphere in Mount Vernon prekindergarten was one of industry and purposefulness. Orderliness and quiet classroom behavior were highly valued. Some effort was made by the teachers to assess classroom behavior and record achievement.

Yonkers

Yonkers presented a situation somewhat akin to Schenectady although the contrast was not nearly so obvious. The one teacher was perceived by a number of observers as being more structured and academically oriented than the other. The program was seen as "teacher directed" and featuring "activity by directing instead of inviting and stimulating." There were a number of criticisms of "total group orientation," but some praise for "individualization of instruction." Several observers viewed "much cognitive and sensory experience" whereas one observer felt that "problem solving was limited." Many observers noted a number of activities involving number, shape, color recognition, and auditory perception, but one observer complained of excessive emphasis on music and snacks, asserting that, "These children have brains to be developed besides voices and stomach muscles."

The daily schedule of the four classes in Yonkers followed the common pattern of free play time, large group activities, snack time, rest period, and then further group activity. The materials available for the free play included the usual housekeeping equipment, dolls, wheel toys, blocks, crayons, paints, and puzzles. The large group activity started with checking the weather and date, taking roll, and counting absentees. These routines were followed in one class by show and tell time and group singing. Later, after snacks and rest, there was storytelling with the use of a flannel board.

There were exercises in the identification of printed names, shapes, and colors;discriminating between similar but not the same items; and matching pairs. Special teacher-made materials were used in these activities, but once these materials were used the concepts were applied to objects in the classroom and to the children's own bodies and wearing apparel. The use of complete sentences was required. Large colored illustrations were used for storytelling, with the children being given an opportunity to develop the situation from their observations of the pictures. The children had practiced copying designs in colored blocks and in manipulating Cuisenaire rods to learn varying size relationships. Group singing and dancing with piano accompaniment played an important part in the program.

The observers' comments concerning the Yonkers program were completely in harmony with the findings included in the teacher practices, the activities descriptions, and the equipment and material usage data. Number activities were observed frequently in both classrooms. Flannel board, lotto, and picture puzzles were used to develop concepts in math and language. The program was "strong in language and cognitive development through songs" and sought "to develop specific language and speech patterns." A few observers though the teachers "attempted to make a lesson out of everything" and conducted "a high pressure program." In general, however, the observers viewed this program as highly academic-cognitive oriented, but less structured than the programs of the previous three districts.

Hempstead

It was difficult to describe the orientation or emphasis of the Hempstead program for all 3 years collectively and so a brief description for each year is provided.

1965-66

Although a number of observers indicated the need for "more structure," "more planning in advance," and complained of "little evidence of progress in language development or concepts," and "a great deal of time in free play," a few observers thought the program was "geared to the primary" and a "formal kindergarten pushed down." The program featured an extensive lunch period and a great deal of emphasis on music (records), dressup, free play, storytime, and puzzles. Despite strong agreement that the program was "teacher directed," there was strong feeling that there were no "special objectives." While "letters and numbers were on display," "they were not taught formally." This program seemed to be criticized by both the observers who were early childhood oriented and those who were academically oriented. The program, although teacher directed, was not perceived as being either structured or academically oriented.

1966-67

The Hempstead program did not change to any significant degree during the second year. Although some attention was given to numbers ("count the days of the month"), capital letters, names, and posters with colors and shapes, the training seemed to be characterized by "little organized presentation of materials" and created a "prevailing impression of diffuseness and indirection." The teacher "did not use any structured, formalized language development programs" and the training "seems to be based on spontaneous interest and curiosity." In general, the Hempstead program was perceived as being less structured and lower in formal academic-cognitive experiences.

1967-68

Hempstead was perceived as relatively higher in structure in general but not nearly as high with respect to structuring language activities. The observers' comments indicated that there were far fewer academic-cognitive activities than there were in the classrooms of the four districts discussed previously. One of the teachers was described as being much more effective and cognitively oriented than the other. Analysis of the activities data substantiated this position. For example, one of the teachers was never observed working with numbers, whereas, the other teachers were observed working with numbers for about 10 minutes a day by six observers. There was a cognitive-academic orientation as manifested in such activities as "visual discrimination," "readiness workbooks," "Peabody Kits," "number activities," and "general language experiences." The program was "quite structured" and perceived by some as "demanding conformity." A number of observers, while acknowledging that cognitive-academic activities were taking place, mentioned that such activities only lasted a "few minutes" and that there was "more time in between these activities than was devoted to the activities themselves." The Hempstead program was, in general, viewed as quite structured and having a cognitive academic orientation. However, it was not as cognitive-academic oriented as the four programs previously discussed but, in general, appeared to be almost as structured.

For All Years 1965-68

The Hempstead classes, like those in Greenburgh, were heterogeneous with children of varying socioeconomic background, although the proportion of nondisadvantaged was smaller. The four classes in Hempstead began with opening exercises including a salute to the flag along with checking the calendar, the weather chart, and attendance. The program again included free play, snack time, rest time, a story hour or other large group activity, and playground. In addition, both the morning and afternoon groups had a hot lunch served in the classroom.

Activities included painting, puzzles, doll corner, dressup, manipulative games, listening to the record player, large wheel toys, play dough, clay, books, group singing, and motion games. In addition, there were special activities such as a visit to the fire station or planting flowers for Mother's Day presents. Such a project as a visit to the fire station provided the theme for storytelling, song, and handwork.

Counting was taught in connection with calendar work. Name recognition was the basis for attendance taking and assignment of helping jobs. In one class, tinted plastic chips, pieces of paper, and squares of felt or flannel board were used to teach colors. The teacher worked with individual children on their concepts. Again, where one of the teachers was a pianist, singing and singing games were specially used.

It appears that the program at Hempstead was never totally a committment to either the "nursery" or "cognitive" approaches.

Greenburgh

The observers' descriptions of the Greenburgh programs were similar to those for Spring Valley. Most of the observers saw "little structure," "no clear purpose," "little attention to planning," "minimal planning except for music," "organized bedlam put to music," "too much total group activity," and "little individualzation." The program was viewed as permissive with the activities being "incidental and child selected," "not skills oriented." However, two of the observers viewed the program as "obviously outstanding in its focus on cognitive learning" and as a "sound program" featuring an "abundance of exploratory materials" through which "language and number concepts are reenforced." It should be recalled that by design two of the team of 10 observers each year were disciples of the early childhood approach. Other than two illustrations of number learning, no formal academically oriented activities were reported, and several observers commented on the "absence of counting and number work." In general, the program in Greenburgh was seen as quite unstructured and avoiding any formal academic curricular orientation.

In a way it was difficult to capture an overall impression of Greenburgh's program during the second year because there were five different teachers. Although the emphasis varied to some extent from teacher to teacher, the rather strong overall impression was one of little structure and relatively little academic-cognitive orientation. Many observers felt that "any sense of order or overall planning was missing," "there was no evidence of written plans or records." One of the teachers was described as having a program that was "planned but not structured" and featuring "carefully planned activities" that "emphasized incidental learning" and capitalized on the "spontaneous situation." In general, the Greenburgh program was quite unstructured and gave evidence of being low in a formal academic-cognitive orientation.

Greenburgh was perceived as a district relatively unstructured and characterized by a weak academic-cognitive orientation. Although number and language development activities were part of the program, these activities were infrequent and of short duration. Some observers felt there were "no language activities," "few planned activities," and "no formal instruction." Some thought there was "no teaching," "many blank periods," and that a "mother could pick up the toys, clean the mess, etc." One observer mentioned the teaching of ordinal numbers in a "play context," but, in general, the observers noted such activities as jumping, hopping, music, exercise, piano, and free play. On both structure and academic-cognitive orientation, Greenburgh was observed as very limited.

The distinctive feature of the prekindergarten classes for all years was the inclusion of nondisadvantaged children with the disadvantaged as was the case with Hempstead. However, the socio-economic strata of the nondisadvantaged children in Greenburgh was higher than the nondisadvantaged in Hempstead.

Spring Valley

In general, the Spring Valley program was viewed as a "warm," "child oriented," and "spontaneous program" in which moment-to-moment happenings seemed to form the curriculum framework. Some observers were critical of "little individualization," "absence of planning," and "too much physical contact." One or two of the observers representing an apparently different early childhood orientation stated that there was an "outstanding learning environment" in which "excellent language communication skills were being developed" by a teacher who "understands" and "enjoys young children," although no specific activities were mentioned. There was much rest time, free play, outside play, music, and storytime. The only illustrations of academic-cognitive orientation cited were name cards for helpers, and Batman's name spelled on the flannel board. This program was unstructured and nonacademic oriented.

The second-year program in Spring Valley was very similar to the first-year program. The program was perceived as very spontaneous with "little evidence of planning" and "few meaningful activities" and existing in a classroom "cluttered with toys and live animals--pets in abundance" with "no feedback from most of the group." Only one observer noted that one of the teachers had "made provision for cognitive activities. In general, there seemed to be emphasis on brushing teeth and keeping pets. Although there was a little attention given to numbers (counting napkins at table), colors (balloons on flannel board), and language (Lotto), the overall impression was one of unstructured activities which were low in formal academic-cognitive orientation.

The outdoor program was strong at both Spring Valley schools because of the isolation of buildings and spacious yards. While turtles and guinea pigs were kept in many of the project classrooms, at Spring Valley there were numerous pets from salamanders to lambs.

One could almost use the description of the Greenburgh program to illustrate the Spring Valley program. The latter reported as "not heavily laden with skill activities" and characterized by "strictly enrichment activities." There was a "good deal of discussion," and "playing, jumping, and free time took up a good portion of the morning." Lotto and name cards were used occasionally but the major emphasis seemed to be on "group activities," "discussing stories," "group enrichment, physical activity, and free play." Spring Valley, like Greenburgh, was observed as very limited in both structure and academic-cognitive orientation.

Long Beach

The pattern which emerges from a study of the comments on the Long Beach program was not too clear. Most of the observers saw a program which "needs a little more structure," in which "the objectives are not clear," where there is too much emphases on "free play," "dance," and "music" ("Pre-K Opera"), and "too brief a period of free time," "that the teachers provided for individual instruction where needed" and that one of the teachers "emphasized premath learning as well as language learning." No illustrations of particular math or language activities were cited by any of the observers. In general, the program was viewed as quite unstructured and lacking in academic orientation.

The Long Beach program was observed to be an unstructured program with little in the way of an academic orientation during the first year of the program. The focus which emerged during the second year was a little different. Both classrooms in the Long Beach program used the "Peabody Language Development Kit," and the teachers in both classrooms were credited with having a "planned program."

However, a number of observers felt that the teachers were "not sure of objectives" and had "no feeling for individuals" or "lost sight of individual." There appeared to be a good deal of "verbal interaction" and the classrooms contained some "Montessori-like materials." A few observers commented on a "lack of cognitive activity" and very few of the observers' descriptions of teacher behaviors include activities in the areas of number, shape, or color, or other prereading activities. In general, and despite the Peabody materials, the program was perceived as low in formal academic cognitive orientation. Although the program was generally seen as planned, there were some questions about the purpose of the planning.

Long Beach could serve as the antithesis of the highly structured, academic-cognitive oriented programs. Many observers viewed the program as "not oriented toward skill building," "with no emphasis on language or cognitive skills," and "no emphasis on skill development and self-realization." Some felt the program was a "ballet-type activity," "with extended free play," "plenty of physical exercise, and playtime with little else." A few of the observers were quite favorable and felt that "each is learning" and "school is fun and a place to learn." The activities data support the impression of little academic-cognitive orientation. No observer ever noted either the teaching of numbers or a specific language lesson, although one observer wrote"language development--all day." Long Beach was the least structured and least academically oriented of all the school districts.

Preschool Attendance

The school year varied from district to district. A summary of the attendance data for 3 years is presented in figure 2. An examination of the data in figure 2 indicates clearly that the children in a district such as Long Beach had a school year which extended 43 more days than did Spring Valley's. Spring Valley usually had four class meetings a week. The fifth day was set aside by the teachers for conferences, visitations, etc. An analysis of the data also indicates that the regularity of attendance on the part of the children varied to some extent from district to district. It is also important to point out that the data in figure 2 represent 3-year averages and that there were some variations in attendance patterns from year to year.

Figure 2

Attendance Figures over 3-Year Period

District	Average Possible Yearly Attendance	Average Actual Yearly Attendance	Percent of Possible Attendance
Cortland	159.5*	145.0	91
Greenburgh	160.7	140.0	87
Hempstead	177.3	153.3	86
Long Beach	180.0	147.0	82
Mount Vernon	170.5**	135.0	79
Schenectady	154.7*** 179.3	128.0 153.3	83 86
Spring Valley	137.3	111.7	81
Yonkers	163.7	130.3	80

*Based on 2 years since Cortland entered the program at the start of the second year.

**Based on 2 years since data from one year could not be used.

***Each year Schenectady had two groups attending different number of days.

CHAPTER IV

THE PROJECT POPULATION

The Disadvantaged Children

The words "disadvantaged child" strike a different emotional chord in each person. To some, it may mean the black child of the ghetto. To others, the image of the rural poverty stricken may appear. Or, it may denote a detailed set of specific family circumstances or "life style" to others.

Most, however, would agree on the future of the disadvantaged child. He will enter school lacking the skills required for normal learning; he will fail in the crucial early years of formal education; he will experience continued failure and frustration in the elementary and early high school years; and he will leave at 16 to seek employment in a market which has little use for the "street" skills he has developed in lieu of school achievement. Finally, and most significantly, he will raise a large family of disadvantaged children, whose lives will be patterned after those of their parents.

Families caught up in this self-perpetuating poverty cycle make up the nation's disadvantaged. They are disadvantaged because the opportunities for "the good life" are not as readily available to them as to the majority of Americans. The circumstances of such families are well documented: (1) Passow, (2) Dawson, (3) Frost, and (4) Reissman.

Occupations of the breadwinner are the most menial, including unskilled labor, domestic labor, odd-job workers, attendants, and the like. Furthermore, annual income is unstable because of the part-time nature of these occupations. Continued, full-time employment with a stable income is rare, and welfare in some form is usually required. Families are large and live in small quarters in multiple dwelling tenement houses, frequently moving to identical accommodations in the same or similar communities. Often the father is missing from the home or contributes little to family income, thus forcing the mother to seek employment. Children usually must seek work at the earliest possible age in order to support themselves or their families. The child of the disadvantaged family does not pursue his education because there is no recognizable reward attached to it by himself or his parents. The lack of motivation, coupled with the cognitive deficiencies found in disadvantaged children, assure educational failure. Indeed, only the extremely exceptional disadvantaged child can hope to escape the fate sketched above.

The Subjects Studied

The 1,807 subjects of this investigation were primarily samples of disadvantaged preschool children drawn from eight communities dispersed throughout New York State. A small sample of nondisadvantaged subjects (about 16 percent of the total) was employed in the study and will be described in a later section. This project population is by no means representative of all the nation's disadvantaged subgroups. Many underprivileged groups--notably the children of migrant workers, Mexican-Americans, and impoverished American Indians--are not included. The samples are, however, representative of the great bulk of this country's poor; the black and white children of the urban and suburban disadvantaged. In addition, the poverty stricken rural population is represented by the sample drawn in one of the cooperating districts.

The original research plan included a relatively simple, systematic method for selection of subjects. Disadvantagement was determined by the use of the Warner's 7-point Rating Scale of Father's Occupation (Appendix E) since it was found to correlate highly with all other indicators of deprivation (i.e. income, father's education, mother's education, home locations and living conditions, race, etc.). Also placed in this category were families who reported no specific occupations, but for which other circumstances clearly indicated severe disadvantagement, i.e. welfare recipients. A child from a family meeting these criteria and who was also testable with the Stanford-Binet and PPVT was accepted into the pool from which the samples were selected.

Though the actual method of selection was simple, the description of the project population which emerged from a questionnaire analysis was rather more detailed.*

The fathers of the disadvantaged children under study had an average occupational rating of 6.1 on the 7-point scale. The distribution among the four disadvantaged categories is as follows:

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*Appendix B

Rating	N
5	429
6	640
7	291
8 (Welfare)	138

Analysis of family income reveals that 50 percent of the families earned less than $5,000 per year and 65 percent had annual incomes of less than $6,000. Although it was suspected that not all respondents who were receiving welfare reported receipt of such payments, 30 percent of all respondents acknowledged receiving some amount of welfare. Average annual income for all families was $5,328. This figure, considered in light of family size (average of 3.5 children per family) and the inflated cost of living in the metropolitan New York area where 75 percent of the project population resides, places most families at, or very near, the poverty level.

Parents of the disadvantaged children had relatively little formal education. Only one in 10 continued education beyond high school. Most had completed 2 or 3 years of high school. The average educational level of fathers was 10.6 years; for mothers, the figure was slightly higher at 11.0.

The children ranged in age from 42 to 54 months with a mean age of 48 months at the time of screening.

The distribution by sex and race of subjects was as follows:

	Boys	Girls	Totals
Negro	377	403	780
White	387	331	718
Totals	764	734	1,498

Although not quite one standard deviation below the national average as reported in the literature, the mean S-B IQ of subjects selected was 91.55. Figure 3 gives a detailed account of the project's disadvantaged subjects and their families.

Figure 3

Demographic data on project's disadvantaged subjects and their families

	THE SUBJECTS				THEIR FAMILIES							
	N	Mean RSB IQ	Race		Warner Rating Disadvantaged				Mean Family Size in No.	Mean Annual Family income	Mean Father's Education in Years	Mean Mother's Education in Years
			Non White	White	5	6	7	8				
Cortland	138	91.96	1% 2	99% 136	29% 40	57% 78	07% 9	07% 11	5.7	$5900	10.4	10.8
Greenburgh	150	94.64	65% 98	35% 52	34% 51	34% 51	25% 38	07% 10	5.3	5446	11.0	11.7
Hempstead	213	91.06	89% 189	11% 24	28% 60	50% 106	18% 39	04% 8	5.6	6381	10.9	11.6
Long Beach	151	89.60	61% 91	39% 60	15% 23	28% 42	23% 34	34% 52	5.8	4024	9.8	10.6
Mt. Vernon	203	92.59	78% 154	24% 49	33% 66	44% 90	21% 42	02% 5	5.1	5538	11.1	11.2
Schenectady	244	91.45	36% 87	64% 157	32% 78	42% 103	19% 46	07% 17	5.6	4500	10.6	11.1
Spring Valley	153	90.91	51% 78	49% 75	29% 45	43% 66	22% 33	06% 9	5.7	6069	10.9	11.0
Yonkers	246	91.34	34% 83	66% 163	27% 67	42% 104	21% 50	10% 25	5.5	5011	10.1	10.4
All Districts	1498	91.55	52% 782	48% 716	29% 429	43% 640	19% 291	09% 138	5.5	$5328	10.6	11.0

The Nondisadvantaged Children

Two of the communities participating in the cooperative study developed programs which provided for the interrelationship of disadvantaged and nondisadvantaged children in the classroom. For this purpose, samples of nondisadvantaged children were drawn using the same criteria outlined above except that Warner's categories 1, 2, 3, and 4 were employed in their selection. As indicated in figure 4, the groups selected were vastly different in all respects from the disadvantaged samples described in the preceding section.

Figure 4

Demographic Data on Nondisadvantaged Subjects and Their Families

District	The Subjects				Their Families							
			RACE		Warner's Rating Nondisadvantaged							
Name	N	Mean RS-B IQ	Non-White	White	1	2	3	4	Average Family Size In No.	Average Annual Family Income	Average Father's Education In Years	Average Mother's Education In Years
Greenburgh	150	110.21	7% 11	93% 139	28% 42	25% 38	29% 44	18% 26	4.4	$14,275	15.8	14.1
Hempstead	80	102.08	54% 43	46% 37	18% 14	19% 15	28% 23	35% 28	4.9	$ 9,893	14.6	13.6

These children were mostly white, middle-class children from residential sections of the two communities. Average family income at $11,326 was more than double the amount reported for disadvantaged families. Their fathers, on the average, had completed 14.9 years of formal education and raised 2.7 children per family unit. The average S-B IQ for the group was one standard deviation above the disadvantaged at 105.35.

Community Variations

Before providing detailed descriptions of the disadvantaged in each participating community, one further dimension of disadvantagement should be discussed relative to deprivation in general.

To begin with, deprivation simply cannot be considered in absolute terms; it is a condition of life relative to the particular circumstances and location in which a family is situated. It has been stated by Willie that a person or category of persons can be considered deprived when their financial resources are insufficient to obtain the necessary goods and services for a normal standard of living in the local community. Thus, a community may be quite affluent in every other important respect but still maintain a subpopulation of severely deprived people because it has simply cut them off from the mainstream of society and the helpful supports of the community.

The eight participating communities of this study covered a wide range in terms of population, community type, and socioeconomic profile. Figure 5 summarizes some pertinent characteristics for each community. This figure suggests that there is only one high socioeconomic community, Greenburgh, and one low socioeconomic community, Mount Vernon. All other communities appear to be mixed.

Although the same criteria were employed in drawing disadvantaged samples from each of the eight participating school districts, there were important differences among some of them on certain population characteristics.

In Cortland, the disadvantaged are almost entirely white rural families who hold a variety of occupations related to agriculture as well as industry. The home circumstances of these more isolated rural disadvantaged children differ markedly from those of the inner-city children.

Greenburgh was one of the two districts with a mixture of disadvantaged and nondisadvantaged children in its preschool program. The disadvantaged of Greenburgh are mostly black who make their living as servants, domestics, gardeners, and other service people in the otherwise well-off, white Westchester community. The pool of disadvantaged children was rather limited in this community. The supply of nondisadvantaged preschool subjects was considerably more plentiful.

Hempstead was the other community which provided for the intermingling of disadvantaged and nondisadvantaged children in the classroom. This urban district has a rather sizable black middle class as well as a large population of lower-class Negroes. Hempstead is an industrialized area and many Negroes hold skilled and unskilled jobs in the numerous factories. Prekindergartem samples were almost entirely nonwhite in the community.

Like Greenburgh, the district of Long Beach is a community of extremes. Here a sizable group of extremely poor black families exists alongside a fairly comfortable white community. A large proportion of black families are recent arrival from the South and other parts of the nation and live off welfare payments and the income from menial part-time jobs. Long Beach is also different from the other districts in that it is a seaside resort in which the pace of living increases considerably in summer, but falls off in the winter season. Preschool samples were divided about equally between white and nonwhite children.

Mount Vernon and Yonkers are urban communities which more closely resemble the cramped conditions of big-city living. Prekindergarten samples drawn in Mount Vernon were mostly nonwhite children, many of whose families received welfare. In Yonkers, there is a mixture of Negro and poor Italian families from which prekindergarten subjects were selected. Many children from the Italian community were first generation Americans.

The disadvantaged populations in Spring Valley and Schenectady were mostly white families (about 75 percent). Schenectady is one of the two upstate communities, but is urban and not rural as is Cortland.

Figure 5 summarizes some of the important characteristics of the eight participating communities.

Figure 5

Selected Community Characteristics

Community	Type	Population 1968 Estimated	1965 % NW*	Prevalence of Low Socio-economic Families	Prevalence of High Socio-economic Families
Cortland	Rural	19,535	.2	Low	Average
Greenburgh	Sub-urban	18,400	4.9	Low	High
Hempstead	Sub-urban	39,474	32.0	Average	Low
Long Beach	Sub-urban	31,731	5.9	High	High
Mount Vernon	Urban	70,150	27.4	High	Low
Schenectady	Urban	69,584	2.7	Average	Low
Spring Valley	Sub-urban	9,650	19.5	Low	Average
Yonkers	Urban	207,247	5.5	Low	Average

*Nonwhite

CHAPTER V

EFFECTS ON INTELLIGENCE AND LANGUAGE

This chapter presents the findings on the immediate effects of the prekindergarten programs on IQ and language. These factors have repeatedly been shown to be those most indicative of later reading achievement and thus are early predictors of later total educational achievement. It was not surprising, therefore, that these factors were selected as major objectives in the program. They have also been the goals of programs reported in other studies. In most of these studies, the same test instruments were used to measure these factors and thus provided an additional basis for comparison with the results achieved in the present study.

Intelligence

In almost all the empirical evaluations of compensatory preschool programs, analyses of data collected with the Stanford-Binet have produced findings regarding changes in IQ. Mean changes reported for participating children have ranged from -.2 to 19 points in nine studies (Alpern, Bereiter, Gray, Karnes, Kohlberg, Phillips, Reidford, Smilansky, Weikart). Two of these (Alpern, Phillips) were not statistically significant either as absolute gains or in comparison with control groups (figure 6).

Despite some renewed support (Jensen, 1969) in behalf of the genetic determination of intelligence and the implied limited

Figure 6

Studies Reporting Effects of Preschool Programs on the IQ of Disadvantaged Children as Measured by Stanford-Binet

	EXPERIMENTAL				CONTROL			
Investigator	N	Pretest	Posttest	Difference	N	Pretest	Posttest	Difference
Alpern	15	91.66	92.06	+ .40	15	93.93	96.93	+ 3.00
Bereiter	15	93.00	100.00	+ 7.00	--	--	--	--
Karnes	59	95.50	106.90	+11.4	--	--	--	--
Klaus and Gray	(#1)19	87.60	102.00	+14.40	18	85.40	88.20	+ 2.80
	(#2)19	92.50	92.30	- .20	24	86.9	88.2	+ 1.3
Kohlberg	10	91.00	108.00	+17.00	--	--	--	--
Phillips	20	89.30	89.30	0.00	10	87.00	89.00	+ 2.00
Reidford	44	95.70	102.10	+ 6.40	--	--	--	--
Smilansky	153	90.60	109.70	+19.10	153	91.50	103.80	+12.30
Weikart	13	78.4	91.1	+12.7	15	75.0	82.2	+ 7.2
DI LORENZO	850	91.76	94.16	+ 2.40	650	91.29	89.46	- 1.83

modifiability of the IQ, programs continued to cite improvement of intelligence or some synonymous cognitive referent as an objective. Equally prevalent is the continued use of traditional individualized tests, such as the Stanford-Binet, to measure this factor. The growing commentaries on the inapplicability of standardized tests for disadvantaged children have not deterred their use in these studies. The current study findings would support the use of the Stanford-Binet as almost equally valid as a predictor as with total populations. The correlation coefficient of the Stanford-Binet and the Metropolitan Achievement Tests was .44. This correlation is statistically significant and impressive despite its derivation from a comparatively homogeneous population and the lapse of 3 years between testings (July 1965 to June 1968).

The Stanford-Binet pretest and posttest data have been analyzed to answer the following questions:

> Has the prekindergarten experience improved the capacity to learn as reflected in the change in IQ scores?
>
> Have some programs been more effective than others in increasing this capacity?
>
> Has the program effectiveness been related to the children's sex, race, and socioeconomic status?

Although table 1 masks the relative effectiveness of the programs by collapsing the individual district results, it does provide the answer to the first question. The prekindergarten experience was beneficial for disadvantaged children as reflected in the changes which took place in the mean IQ scores. These changes were significant for the Wave II and III experimental children and the three waves combined. On the other hand, the control groups' mean IQ's regressed in all 3 years; this decrease was statistically significant in 2 of these years and for the total for all 3 years. The differences between the experimental and control group changes in mean IQ's were significant in all 3 years.

As was described in Chapter III, some nondisadvantaged children were included in two of the programs. Table 1 presents the findings for these groups. The programs did improve the mean IQ's of the nondisadvantaged children, but in relative comparison with their control groups the programs were less effective for the nondisadvantaged than for the disadvantaged.

The inclusion of nondisadvantaged children in prekindergarten raises an area of concern which cannot be dealt with at length in this report. However, a few comments are pertinent. Several states* have already proposed preschool for all children, disadvantaged as well as nondisadvantaged. New York State is farthest along in this direction.

Since 1966, the New York State Education Department has provided over $5 million annually to local school districts to operate yearlong prekindergarten programs for disadvantaged children. In December 1967, the Regents of the University of the State of New York issued a position paper which called for universal prekindergarten for 4-year-olds during 1970-74 and for 3-year-olds during 1974-78. The reaction of this investigator to that paper was to note the adverse effect that universal prekindergarten programs might have on the intent of the special prekindergarten programs operating to close the gap between disadvantaged and nondisadvantaged children.

In March 1969, Governor Rockefeller sent to the legislature a bill requesting $50 million for the construction and equipment of day care centers which was passed. This was followed by an executive order to all State agencies to make appropriate space available in suitable buildings for the operation of day care centers for all children of preschool age who are residents of the community. What universal prekindergarten may mean for the special efforts of compensatory prekindergarten education is of particular concern in New York State. The limited data in table 1 provide some insight into this concern.

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*California, Michigan, New York

These findings from table 1 are relevant to both the first question asked and to the issue of universal prekindergarten. The first is the finding that the gap in IQ between disadvantaged and nondisadvantaged increases without participation of either in prekindergarten programs. This finding merely supports the findings of many investigations (Deutsch, Bloom).

The second shows that when disadvantaged children participate in prekindergarten programs, they narrow the difference in IQ between themselves and nondisadvantaged children who have not been in prekindergarten programs. Finally, the data show that when both disadvantaged and nondisadvantaged participate in prekindergarten programs, the size of the original gap in IQ remains the same.

These findings are not addressed to the question of whether we should withhold a program from which middle-class children can benefit, but whether we can close the gap between disadvantaged and nondisadvantaged children if universal participation is permitted.

The judgment on effectiveness of the program for the disadvantaged is based on the comparison of like groups: disadvantaged experimentals with disadvantaged controls. On the other hand, if we were to evaluate the changes on what was hoped would be achieved, the same conclusion

Table 1

Stanford-Binet IQ Changes of Prekindergarten Children by Socioeconomic Status and Treatment

Wave	Score	Disadvantaged		Nondisadvantaged	
		Exp.	Con.	Exp.	Con.
I 1965-66	N	245	217	53	54
	Pretest $\overline{X}$	90.97	90.75	105.98	106.69
	Posttest $\overline{X}$	90.07	88.20	105.19	105.91
	Change	-0.90	-2.55*	-0.79	-0.78
	Difference	1.65**		0.01	
II 1966-67	N	322	215	82	46
	Pretest $\overline{X}$	92.66	90.97	104.27	105.70
	Posttest $\overline{X}$	96.71	90.01	109.28	106.59
	Change	4.05*	-0.96	5.01*	0.89
	Difference	5.01*		4.12**	
III 1967-68	N	283	216	44	28
	Pretest $\overline{X}$	91.43	92.08	105.84	103.11
	Posttest $\overline{X}$	94.81	90.02	107.02	99.82
	Change	3.38*	-2.06*	1.18	-3.29
	Difference	5.44**		4.47	
TOTAL Wave I, II, & III	N	850	650	179	128
	Pretest $\overline{X}$	91.76	91.29	105.16	105.55
	Posttest $\overline{X}$	94.16	89.46	107.51	104.82
	Change	2.40*	-1.83*	2.35*	-0.73
	Difference	4.23*		3.08**	

***Significant at .05 level; **Significant at .1 level**

cannot be reached. The initial difference in IQ between the disadvantaged and nondisadvantaged children was approximately 14 points (91 and 105). At the end of prekindergarten, the gap between disadvantaged and nondisadvantaged controls increased to 15.36 (89.46 and 104.82). However, even though the gap was narrowed between the disadvantaged experimentals and the nondisadvantaged controls,the remaining difference was still significant, 10.66 IQ points (94.16 and 104.82).

Judged by the classical research design, prekindergarten was successful; in terms of its educational mission, it fell far short.

The data were analyzed to learn if some programs were more effective than others. Conclusions drawn were based on the overall results achieved with the three waves of children. Direct comparisons between programs were not made in accord with sampling requirements for experimental designs. The children in each district were not drawn from the same parameter and were not assumed to be equivalent. Each district's experimental group was therefore compared with its randomly selected control group. Comparisons of programs were then possible in terms of the individual success of each program.

A total of 25 comparisons or statistical tests of significance were made over the 3 years. If all programs had been successful in increasing IQ in all years, all 25 tests would have been statistically significant. However, only 10 of the differences were significant. The four districts described as having cognitive-academic-structured programs produced eight of these differences.

The most dramatic results were achieved by the language-dominated programs at Cortland, where the experimentals made mean IQ gains of about 10 points while controls experienced a loss in mean IQ (table 2).

Seven of the 10 significant differences were produced by the cognitive programs in Cortland, Yonkers, and Schenectady. The eighth was produced in the third year of the Mount Vernon program. The use of the four ERE machines was discontinued after the first 2 years and the START machine program was imployed the third year in which the significant difference was produced.

The children participating in the prekindergarten programs in two districts, Greenburgh and Long Beach, had a decrease in mean IQ over the 3 years. These programs were described as traditional nursery education in approach.

The third question concerned the relationship between the programs' effect on IQ and the sex, race, and socioeconomic status of the children. Table 3 data shows the programs to have been equally effective for boys and girls. The fluctuation of more favorable results for boys one year, and girls the next, is best interpreted as spurious or random rather than attributable to some interacting variable.

However, it is quite noteworthy to have such conclusive demonstration of higher scores by girls than boys. In the 24 different comparisons of male and female groups (excluding comparisons of a treated group with a nontreated group), in 21 cases the mean IQ of the female group is greater than the mean for the corresponding male group.

Table 2

Comparison Within Districts of Changes in Mean IQ of Disadvantaged Experimental and Control Children

Wave	Score	GREENBURGH		LONG BEACH		SP. VALLEY		HEMPSTEAD		YONKERS		MT. VERNON		SCHENECTADY		CORTLAND[1]		CORTLAND[2]	
		Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
I 1965-66	N	30	29	24	28	32	21	36	29	44	33	49	37	41	53				
	Pretest $\overline{X}$	90.40	95.07	93.67	94.71	90.47	86.76	89.67	92.76	93.64	92.15	91.35	88.51	90.34	88.81				
	Posttest $\overline{X}$	86.00	94.66	93.46	92.71	86.91	83.71	88.64	88.90	95.70	90.21	89.47	86.73	91.80	85.77				
	Change	-4.40*	-0.41	-0.21	-2.00	-3.56**	-3.05	-1.03	-3.86*	2.06	-1.94	-1.88	-1.78	1.46	-3.04**				
	Diff.	3.99		1.79		0.51		2.83		4.00		0.10		4.50*					
II 1966-67	N	33	16	28	29	27	24	55	23	48	43	48	23	41	38	19	19	23	19
	Pretest $\overline{X}$	96.79	97.63	87.29	86.59	90.56	91.04	91.80	87.22	92.50	90.16	95.54	93.22	93.83	92.92	87.26	91.74	94.48	91.74
	Posttest $\overline{X}$	99.15	96.44	86.86	86.52	96.52	89.54	93.33	87.22	99.08	90.86	97.17	91.96	98.34	89.05	97.95	91.53	103.61	91.53
	Change	2.36	-1.19	-0.43	-0.07	5.9[illegible]*	-1.50	1.53	0.00	6.58*	0.70	1.63	-1.26	4.51*	-3.87*	10.69*	-0.21	9.13*	-0.21
	Diff.	3.55		0.36		7.46*		1.53		5.88*		2.89		8.38*		10.90*		9.34*	
III 1967-68	N	24	18	27	21	29	24	45	25	44	41	25	26	36	37	27	24	26	24
	Pretest $\overline{X}$	94.45	94.67	87.44	88.14	92.14	93.92	90.27	94.44	90.11	89.41	94.64	92.77	91.69	92.05	91.41	93.13	92.81	93.13
	Posttest $\overline{X}$	95.29	92.11	86.37	85.57	93.62	94.63	93.58	90.20	95.70	87.34	97.76	87.92	95.86	92.70	100.04	90.25	95.31	90.25
	Change	0.84	-2.56	-1.07	-2.57	1.48	0.71	3.31**	-4.24**	5.59*	-2.07	3.12	-4.85*	4.17**	0.65	8.63*	-2.88	2.50	-2.88
	Diff.	3.40		1.50		0.77		7.55*		7.66*		7.97*		3.52		11.51*		5.38	
TOTAL Waves I, II, & III	N	87	63	79	78	88	69	136	77	136	117	122	86	118	128	46	43	49	43
	Pretest $\overline{X}$	93.94	95.60	89.28	89.92	91.05	90.74	90.73	91.65	92.10	90.46	93.67	91.06	91.97	90.97	89.70	92.51	93.59	92.51
	Posttest $\overline{X}$	93.55	94.38	88.70	88.49	92.07	89.54	92.17	88.82	96.90	89.44	94.20	88.49	95.31	88.75	99.17	90.81	99.20	90.81
	Change	-0.39	-1.22	-0.58	-1.43	1.02	-1.20	1.44	-2.83*	4.80*	-1.02	0.53	-2.57*	3.34*	-2.22*	9.47*	-1.70	5.61*	-1.70
	Diff.	0.83		0.85		2.22		4.27*		5.82*		3.10**		5.56*		11.17*		7.31*	

*Significant at .05 level; **Significant at .1 level

[1] Discussion
[2] Pattern Drill

Table 3

Stanford-Binet IQ Changes of Disadvantaged Prekindergarten Children by Treatment and Sex

Wave	Score	Experimental		Control	
		1 Male	2 Female	3 Male	4 Female
I 1965-66	N	123	122	109	108
	Pretest $\overline{X}$	90.10	91.85	88.92	92.74
	Posttest $\overline{X}$	90.34	89.86	86.61	90.11
	Change	0.24	-1.99*	-2.31*	-2.63*
	Difference	2.33		0.32	
	Difference 1-3	2.55**			
	Difference 2-4		0.64		
II 1966-67	N	158	164	109	106
	Pretest $\overline{X}$	91.85	93.43	90.52	91.43
	Posttest $\overline{X}$	94.73	98.60	89.18	90.86
	Change	2.88*	5.17*	-1.34	-0.57
	Difference	2.29**		0.77	
	Difference 1-3	4.22*			
	Difference 2-4		5.74*		
III 1967-68	N	152	131	113	103
	Pretest $\overline{X}$	89.54	93.63	91.49	92.73
	Posttest $\overline{X}$	93.34	96.50	89.50	90.59
	Change	3.80*	2.87*	-1.99**	-2.14*
	Difference	0.93		0.15	
	Difference 1-3	5.79*			
	Difference 2-4		5.01*		
TOTAL Wave I, II, & III	N	433	417	331	319
	Pretest $\overline{X}$	90.54	93.03	90.32	92.30
	Posttest $\overline{X}$	93.00	95.39	88.44	90.51
	Change	2.46*	2.36*	-1.88*	-1.79*
	Difference	0.10		0.09	
	Difference 1-3	4.34*			
	Difference 2-4		4.15*		

*Significant at .05 level; **Significant at .1 level

When comparisons of IQ changes were made by race (table 4) between experimental and control groups, both the nonwhite and white prekindergarten children significantly improved their scores over their respective controls. Keeping in mind that this analysis is based on collapsing the individual district results, it can be concluded that the prekindergarten experience was beneficial to both white and nonwhite subjects.

Of particular importance is the finding that the program, while of benefit to white and nonwhite groups, was not equally beneficial by race. The mean IQ gains were greater for the white than for the nonwhite experimentals in all 3 years; in 2 years, these differences were significant. Also, the comparative gain of white experimentals over white controls was greater than the nonwhite experimental gains made over the nonwhite controls in all 3 years. A significant interaction of program and race did exist.

Several noteworthy side observations can be made on this analysis. The first was anticipated and supportive of earlier findings; that is, although both the white and nonwhite children met the same criteria for classification as disadvantaged, the average IQ of the white children was 5 points higher than that of the nonwhite children before prekindergarten. The initial IQ difference of 6.35 between the white and black controls increased to 7.43 in favor of the white group. This was due to the more rapid regression in IQ of the blacks.

For the experimental groups combined, the pretest mean difference of 5.25 IQ points in favor of the whites increased to 9.41 points

Table 4

Stanford-Binet IQ Changes of Disadvantaged Prekindergarten Children by Treatment and Race

Wave	Score	Experimental		Control	
		1	2	3	4
		Nonwh.	White	Nonwh.	White
I 1965-66	N	159	86	121	96
	Pretest $\bar{X}$	88.82	94.95	87.79	94.59
	Posttest $\bar{X}$	87.41	95.08	85.20	92.28
	Change	-1.41	0.13	-2.59*	-2.31*
	Difference	1.54		0.28	
	Difference 1-3	1.18			
	Difference 2-4		2.44		
II 1966-67	N	167	155	107	108
	Pretest $\bar{X}$	90.54	94.94	87.22	94.69
	Posttest $\bar{X}$	91.99	101.79	85.45	94.53
	Change	1.45**	6.85*	-1.77**	-0.16
	Difference	5.40*		1.61	
	Difference 1-3	3.22*			
	Difference 2-4		7.01*		
III 1967-68	N	132	151	94	122
	Pretest $\bar{X}$	88.45	94.03	89.46	94.10
	Posttest $\bar{X}$	90.01	99.00	86.67	92.60
	Change	1.56	4.97*	-2.79*	-1.50
	Difference	3.41*		1.29	
	Difference 1-3	4.35*			
	Difference 2-4		6.47*		
TOTAL Wave I, II, & III	N	458	392	322	328
	Pretest $\bar{X}$	89.34	94.59	88.09	94.44
	Posttest $\bar{X}$	89.83	99.24	85.71	93.14
	Change	0.49	4.65*	-2.38*	-1.30*
	Difference	4.16*		1.08	
	Difference 1-3	2.87*			
	Difference 2-4		5.95*		

*Significant at .05 level; **Significant at .1 level

on the posttest. This was the result of the nonwhite experimental group improving their mean IQ by only .49, while the white mean increased a significant 4.65 points. Thus, the initial significant difference in IQ between the disadvantaged blacks and whites was enlarged more by participation in preschool than by nonparticipation.

In summary, the prekindergarten programs were successful in different ways for the races. For the white children, the programs were successful in that they increased their intelligence; for the nonwhite children the programs did not compensate for earlier deprivation but inhibited further cognitive retardation. While the black children suffered more by not being given special treatment, the white children gained more from special programs.

The data were analyzed for second-order interactions which are reported in the matrices in Appendix G.

Language

Language development was also designated as one of the five major objectives of the prekindergarten program. It had been the experience of the participating school districts that their children from low socioeconomic families possessed language facilities which were inadequate for school success. Their experience was supported by the empirical evidence so aptly summarized in the report of the Research Conference on Education and Cultural Deprivation: "...lower-class children lack abstract language--words for categories, class names, and non-concrete ideas."*

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*Benjamin Bloom _et al_. _Compensatory Education for Cultural Deprivation_ New York: Holt, Rinehart and Winston, Inc., 1965, p. 70.

In the deprived home, language usage is limited. Much communication is through gestures and other nonverbal means. When language is used, it is likely to be terse and frequently grammatically incorrect. In any case, it is likely to be restricted in the number of grammatical forms used. Thus, the disadvantaged child enters school inadequately prepared for the typical language tasks of the first grade. His greatest handicap seems to be a lack of familiarity with the speech used by teachers and insufficient practice in attending to prolonged speech sequences.

Although stated as separate objectives, capacity to learn and language development are heavily overlapping variables. The verbal component of intelligence has been repeatedly demonstrated to correlate higher with the total IQ test score than any other subfactor. While the Stanford-Binet test does not contain subtests, it was possible to verify the earlier evidence of the language deficiencies described.

The test items on the Stanford-Binet were classified as either heavily language-loaded or not. If the item required a sentence or more for a correct response (expressive) or if the item required several sentences of directions by the examiner (receptive), it was classified as heavily language-loaded. The gap between the performance of the nondisadvantaged and disadvantaged children was far greater for the language loaded than the nonlanguage loaded items (separate detail report available).

Peabody Picture Vocabulary Test

Two measures of language were employed: The Peabody Picture Vocabulary Test (PPVT) and five of the subtests of the Illinois

Test of Psycholinguistic Abilities (ITPA) as discussed in another section. The PPVT conversion of scores to IQs was not utilized because of the test limitations which have been reported elsewhere (Di Lorenzo and Brady). The data were analyzed to answer the same three questions with respect to language development as were asked regarding capacity to learn. The first was:

> Has the prekindergarten experience improved language development as measured by the PPVT and ITPA?

The data on both measures (tables 5 and 8) are in agreement. Over the 3 years, the language performance of the disadvantaged experimental children was significantly better than that of the control children at the end of the prekindergarten experience. Such was not the effect of the program with the nondisadvantaged experimental and control groups.

As with the IQ data, the results in the language development of the disadvantaged preschool children are impressive when compared with their control counterparts, but are far from impressive in the light of the scores of their middle-class peers. The initial PPVT gap (almost 12 points) between the two socioeconomic groups was closed by the experimental group by over 25 percent (about 4 points closer to a difference of 9 points).

The second question, asking whether some programs were more effective than others, was answered by an analysis of the data by districts. Using the PPVT as the criterion, the results show the four districts described as having nursery-oriented programs about as effective as the four districts having cognitive programs. Of a total of 16 significant differences shown in table 6, eight favored

Table 5

PPVT Raw Score Changes of Prekindergarten Children
by Socioeconomic Status and Treatment

Wave	Score	Disadvantaged		Nondisadvantaged	
		Exp.	Con.	Exp.	Con.
I 1965-66	N	249	214	52	55
	Pretest $\bar{X}$	30.50	30.01	43.31	42.15
	Posttest $\bar{X}$	43.76	41.37	52.77	52.33
	Change	13.26	11.36	9.46	10.18
	Difference	1.90		0.72	
II 1966-67	N	320	213	81	46
	Pretest $\bar{X}$	32.43	31.42	44.21	45.54
	Posttest $\bar{X}$	43.78	41.35	53.21	54.65
	Change	11.35	9.93	9.00	9.11
	Difference	1.42		0.11	
III 1967-68	N	283	216	44	28
	Pretest $\bar{X}$	27.44	28.88	41.09	36.11
	Posttest $\bar{X}$	44.85	42.65	53.89	52.71
	Change	17.41	13.77	12.80	16.60
	Difference	3.64		3.80	
TOTAL Wave I, II, & III	N	852	643	177	129
	Pretest $\bar{X}$	30.20	30.12	43.17	42.05
	Posttest $\bar{X}$	44.13	41.81	53.25	53.24
	Change	13.93	11.69	10.08	11.19
	Difference	2.24		1.11	

experimentals in cognitive programs, and seven favored experimentals in nursery-type programs; one favored a control group over an experimental group in a nursery program in Greenburgh in 1967-68.

Table 6

Comparison Within Districts of PPVT Raw Score Changes of Disadvantaged Experimental and Control Children

Wave	Score	GREENBURGH		LONG BEACH		SP. VALLEY		HEMPSTEAD		YONKERS		MT. VERNON		SCHENECTADY		CORTLAND[1]		CORTLAND[2]	
		Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
I 1965-66	N	30	28	26	28	34	21	37	29	44	32	48	37	41	52				
	Pretest $\overline{X}$	30.83	33.39	31.46	32.21	30.44	30.43	29.95	30.28	31.39	30.25	27.40	25.16	33.46	32.04				
	Posttest $\overline{X}$	40.57	45.07	43.54	40.93	44.12	42.14	42.16	42.93	45.91	42.66	41.71	37.30	48.61	41.88				
	Change	9.74	11.68	12.08	8.72	13.68	11.71	12.21	12.65	14.52	13.41	14.31	12.14	15.15	9.84				
	Diff.	1.94		3.36		1.97		0.44		2.11		2.17		5.31					
II 1966-67	N	33	16	28	27	27	24	55	23	48	43	47	23	41	38	19	19	22	19
	Pretest $\overline{X}$	34.06	39.38	26.43	25.33	34.00	31.75	33.31	31.26	28.46	27.79	34.79	33.74	32.15	33.66	34.16	34.11	36.18	34.11
	Posttest $\overline{X}$	45.12	47.63	38.36	36.37	45.04	38.58	43.71	38.30	43.21	40.39	44.89	44.57	42.78	44.26	43.53	42.79	48.23	42.79
	Change	11.06	8.25	11.93	11.04	11.04	6.83	10.40	7.04	14.75	12.60	10.10	10.83	10.63	10.60	9.37	8.68	12.05	8.68
	Diff.	2.81		0.89		4.21		3.36		2.15		0.73		0.03		0.69		3.37	
III 1967-68	N	24	18	27	21	29	24	45	25	44	41	25	26	36	37	27	24	26	24
	Pretest $\overline{X}$	33.35	27.44	19.59	20.42	33.38	36.33	24.67	28.96	24.70	21.12	31.40	30.38	26.42	33.76	28.89	33.96	29.12	33.96
	Posttest $\overline{X}$	46.96	46.16	35.77	32.00	51.62	50.58	42.84	40.32	40.91	35.05	47.16	47.46	45.08	47.19	49.07	44.63	48.00	44.63
	Change	13.71	18.72	16.18	11.57	18.24	14.25	18.17	11.36	16.21	13.93	15.76	17.08	18.66	13.43	20.18	10.67	18.88	10.67
	Diff.	5.01		4.61		3.99		6.81		2.28		1.32		5.23		9.51		8.21	
TOTAL Wave I, II, & III	N	87	62	81	76	90	69	137	77	136	116	120	86	118	127	46	43	48	43
	Pretest $\overline{X}$	32.72	33.21	25.77	26.51	32.46	32.94	29.56	30.14	28.19	26.11	31.13	29.03	30.86	33.02	31.07	34.02	32.35	34.02
	Posttest $\overline{X}$	44.06	46.05	39.16	36.84	46.81	43.84	43.01	40.70	43.34	39.13	44.09	42.31	45.51	44.14	46.78	43.81	48.10	43.81
	Change	11.34	12.84	13.39	10.33	14.35	10.90	13.45	10.56	15.15	13.02	12.96	13.28	14.65	11.12	15.71	9.79	15.75	9.79
	Diff.	1.50		3.06		3.45		2.89		2.13		0.32		3.53		5.92		5.96	

[1] Discussion
[2] Pattern Drill

Notation of the markedly greater effectiveness of the Cortland programs should be made. The programs in use were the Bereiter-Engelmann Pattern Drills and a formal discussion program described earlier. While it is not surprising that a program focused on language development should produce better results in this area than programs without this specificity, it is reinforcing that the Cortland programs also produced the largest difference in IQ (table 6).

The third question again concerned program effectiveness in interaction with the factors of sex, race, and socioeconomic status. Despite efforts at objectivity and the control achieved in an experimental design, interpretation of the data is still open to subjectivity over which the investigator has no control but which he should bring to the attention of the reader.

The data on program effectiveness for males and females in table 7 may be interpreted in several ways. If the experimental males are compared with the experimental females, it must be concluded that the programs were more effective for males. On the other hand, if the comparison is made between the relative effectiveness of the program for the experimental males and females over their like-sex control groups, then one must conclude the girls benefited more. It could be further argued that since the male superiority was evidenced only in the control groups, a program interaction in favor of females does in fact exist. These distinctions are reported for theoretical accuracy. For practical purposes the investigator has concluded, on the basis of the total data, that the programs were equally effective by sex on language as measured by the PPVT (table 7).

Table 7

PPVT Raw Score Changes of Disadvantaged Prekindergarten Children by Treatment and Sex

Wave	Score	Experimental		Control	
		1 Male	2 Female	3 Male	4 Female
I 1965-66	N	125	124	109	105
	Pretest $\overline{X}$	30.42	30.51	29.10	31.06
	Posttest $\overline{X}$	45.13	42.42	42.44	40.35
	Change	14.71	11.91	13.34	9.29
	Difference	2.80		4.05	
	Difference 1-3	1.37			
	Difference 2-4		2.62		
II 1966-67	N	156	164	109	104
	Pretest $\overline{X}$	32.94	31.95	32.04	30.78
	Posttest $\overline{X}$	44.12	43.46	42.39	40.27
	Change	11.18	11.51	10.35	9.49
	Difference	0.33		0.86	
	Difference 1-3	0.83			
	Difference 2-4		2.02		
III 1967-68	N	152	131	113	103
	Pretest $\overline{X}$	27.76	27.06	30.19	27.45
	Posttest $\overline{X}$	46.16	43.33	44.59	40.52
	Change	18.40	16.27	14.40	13.07
	Difference	2.13		1.33	
	Difference 1-3	4.00			
	Difference 2-4		3.20		
TOTAL Wave I, II, & III	N	433	419	331	312
	Pretest $\overline{X}$	30.39	30.00	30.44	29.77
	Posttest $\overline{X}$	45.13	43.11	43.16	40.38
	Change	14.74	13.11	12.72	10.61
	Difference	1.63		2.11	
	Difference 1-3	2.02			
	Difference 2-4		2.50		

The program's relative effectiveness for white and black children was analyzed. As with the Stanford-Binet data, it is equally apparent that the white disadvantaged children are performing considerably above the disadvantaged black children. As with the IQ results, both races improved significantly over their controls. But, unlike the IQ results, white children did not gain appreciably more in this receptive language function than did the nonwhite children (appendix H).

Since this finding does not agree with the results on IQ data and with the results on the ITPA, an interpretation is offered on the basis of the PPVT measure itself. This test measures a pure factor--ability to associate the oral name with the pictured object or activity. It is a lower level of language functioning. It represents the earliest language behavior acquired developmentally during infancy and early childhood and is readily teachable. Administratively, the test lacks ambiguity and is of short duration which makes it ideal for young disadvantaged subjects. It is more accurately described as a picture-vocabulary association test than a general measure of language.

There was no significant interaction between program, race, and sex with the PPVT as the criterion measure of language development. Appendix H contains the data for second-order interactions.

Illinois Test of Psycholinguistic Abilities

The data from the ITPA testing was analyzed to provide answers to the three questions (pp. 15-18). As indicated in the previous analysis, both PPVT and ITPA findings verified the effectiveness of the program in improving language development for the disadvantaged preschoolers but not for the nondisadvantaged children. Again, despite the improvement produced, the language gap between disadvantaged participants and nondisadvantaged controls was still greater than the gap between the former and the disadvantaged controls (table 8).

The relative effectiveness of cognitive and nursery education programs on language development was determined by a study of the results reported in table 9. Six of the eight significant differences were produced by three of the four cognitively oriented programs, while only two significant differences were produced by the four nursery-education-oriented programs. Only in Cortland did the average performance of the experimental groups come up to the level of language performance reached by the nondisadvantaged control children in the study. This is the sole instance where the goal of removing the gap between the lower and middle-class groups' performances through a compensatory program was achieved.

To determine whether the program interacted with either sex or race in effectiveness, table 10 was studied. As in the findings with the SB and PPVT, the programs were equally effective for males and females and were more effective for whites than nonwhites.

A table of second-order interactions is contained in appendix I.

Summary

The prekindergarten programs had as two of their objectives the improvement of the capacity to learn and the language development of their disadvantaged children. The study measured capacity

Table 8

Comparison of Adjusted Means on the Illinois Test of Psycholinguistic Abilities of Prekindergarten Children by Socioeconomic Status and Treatment

Test administered at end of prekindergarten; covariate: S-B pretest

Wave	Score	Disadvantaged		Nondisadvantaged	
		Exp.	Con.	Exp.	Con.
I 1965-66	N	243	216	53	51
	Mean	57.08	51.88	69.18	67.05
	Difference	5.20*		2.13	
II 1966-67	N	317	212	80	46
	Mean	61.54	57.53	70.77	70.18
	Difference	4.01*		0.59	
III 1967-68	N	281	215	44	28
	Mean	64.10	60.96	72.69	72.09
	Difference	3.14*		0.60	
TOTAL Wave I, II, & III	N	841	643	177	125
	Mean	61.11	56.77	70.79	69.30
	Difference	4.34*		1.49	

*Significant at .05 level; **Significant at .1 level

to learn, or IQ, with the Stanford-Binet Test and language with the PPVT and ITPA.

The success in increasing IQ scores was attributable to the four districts with cognitive programs and not to those with early childhood oriented programs. The programs were equally effective for boys and girls. However, although the programs were successful for the black children, they were significantly more so for the white children.

The inclusion of a sample of nondisadvantaged children enabled

Table 9

Comparison Within Districts of Adjusted Means on the Illinois Test of Psycholinguistic Abilities for Disadvantaged Experimental and Control Children

Wave	Score	GREENBURGH		LONG BEACH		SP. VALLEY		HEMPSTEAD		YONKERS		MT. VERNON		SCHENECTADY		CORTLAND[1]		CORTLAND[2]	
		Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
I	N	30	28	22	24	31	18	36	28	39	31	45	35	40	52				
	Adjusted $\overline{X}$	54.79	54.80	59.19	54.09	57.28	52.05	55.09	50.96	60.01	52.59	52.66	47.17	61.03	52.45				
1965-66	Diff.	0.01		5.10		5.23		4.13		7.42*		5.49		8.58*					
II	N	32	16	27	28	27	23	54	22	47	43	47	23	41	38	19	19	23	19
	Adjusted $\overline{X}$	57.86	57.82	56.46	56.18	63.75	56.89	62.64	56.28	63.87	56.74	59.19	57.49	59.19	58.17	68.54	63.45	67.86	63.45
1966-67	Diff.	0.04		0.28		6.86*		6.36*		7.13*		1.70		1.02		5.09		4.41	
III	N	24	18	26	21	29	24	45	25	43	41	25	26	36	36	27	24	26	24
	Adjusted $\overline{X}$	63.12	63.33	58.87	60.33	66.41	64.59	62.51	59.75	64.68	55.90	58.68	59.28	64.50	66.35	71.26	59.78	66.61	59.78
1967-68	Diff.	0.21		1.46		1.82		2.76		8.78*		0.60		1.85		11.48*		6.83*	
TOTAL	N	86	62	75	73	87	65	135	75	129	115	117	84	117	126	46	43	49	43
Wave I, II, & III	Adjusted $\overline{X}$	58.17	58.12	58.13	56.75	62.29	58.18	60.54	55.34	63.02	55.33	56.51	53.73	61.44	58.13	69.86	61.03	66.87	61.03
	Diff.	0.05		1.38		4.11*		5.20*		7.69*		2.78		3.31*		8.83*		5.84*	

*Significant at .05 level
**Significant at .1 level

[1] Discussion
[2] Pattern Drill

Table 10

Comparison of Adjusted Means on the Illinois Test of Psycholinguistic Abilities of Disadvantaged Prekindergarten Children

Wave	Score	Treatment and Sex				Treatment and Race			
		Experimental		Control		Experimental		Control	
		1 Male	2 Female	3 Male	4 Female	1 Nonwh.	2 White	3 Nonwh.	4 White
	N	123	120	109	107	159	84	121	95
	Adjusted Mean	57.38	56.77	51.04	52.72	54.34	62.28	51.28	52.62
I	Difference	0.61		1.68		7.94*		1.34	
1965-66	Difference 1-3	6.34*				3.06*			
	Difference 2-4		4.05*				9.66*		
	N	156	161	108	104	162	155	104	108
	Adjusted Mean	61.66	61.43	56.59	58.50	59.51	63.73	53.26	61.54
II	Difference	0.23		1.91		4.22*		8.28*	
1966-67	Difference 1-3	5.07				6.25*			
	Difference 2-4		2.93**				2.19		
	N	151	130	113	102	131	150	94	121
	Adjusted Mean	63.96	64.26	61.74	60.09	60.42	67.29	59.69	61.97
III	Difference	0.30		1.65		6.87*		2.28	
1967-68	Difference 1-3	2.22				0.73			
	Difference 2-4		4.17*				5.32*		
TOTAL	N	430	411	330	313	452	389	319	324
	Adjusted Mean	61.30	60.92	56.51	57.05	58.02	64.73	54.41	59.07
Wave I, II, & III	Difference	0.38		0.54		6.71*		4.66*	
	Difference 1-3	4.79*				3.61*			
	Difference 2-4		3.87*				5.66*		

*Significant at .05 level; **Significant at .1 level

the study to report that the program was successful in elevating the IQ's of these children as well. This finding raises the issue of the desirability and logic of universal prekindergarten at a time when special efforts are being made to provide a "Head Start" to close the gap between disadvantaged and nondisadvantaged children.

The success of the programs in achieving language improvement was assessed at two levels. At the lower level, the PPVT was the criterion measure; a higher level of language functioning was measured by the ITPA.

Both cognitive and nursery programs were effective with the disadvantaged at the lower language level (PPVT). However, only the cognitive programs were successful at the higher level of language functioning.

At both levels, the programs, where effective, were equally beneficial to boys and girls. With respect to race, the programs were equally effective only at the lower level (PPVT). At the higher level of language (ITPA), they were more effective for whites than for blacks.

For the nondisadvantaged populations, the programs were not effective at either level of language development. This finding seems to confirm the assertion that home environment of the disadvantaged preschool child is lacking in the opportunity for language development. The language programs offered added nothing at these levels (PPVT, ITPA) to the nondisadvantaged child's environment that was not present in his home.

CHAPTER VI

THE EFFECTS ON SELF-CONCEPT

The goals of the prekindergarten programs were not limited to cognitive growth exclusively but included better self-concept in the affective area. While the results of these efforts with the self-concept objective are the main concern here, a preliminary discussion will be made of self-concept as a variable and of the psychometric design used in its measurement.

Self-Concept Theory

Self-concept is one of those terms which educators enjoy using with little restraint. Its hierarchical position on lists of educational goals goes unchallenged. Its significance and relatedness to the total educational endeavor are universally espoused. The "experienced eye" of the pedagogue is most frequently used to detect the gradations of change in the behavioral manifestation of self-concept. The superficiality with which it is treated enables one to "read into" every education act its presence.

The complexity of the notion of self-concept can begin to be understood if an attempt is made at either a behavioral definition of the term or providing specific experiences to bring about specified changes in self-concept. The latter effort was necessary in the conduct of the programs and prompted a review of the writings in this area.

Early literature on the topic of self-concept was mainly devoted to theoretical views of the construct. The literature dates back to the late 1800's with one of the first lengthy treatments by William James in his two volume, Principles of Psychology.* Concern with the self was implicit in the introspectionist and Freudian traditions, which through their contributions have established "self" within the dominion of psychological concern. Interest in the self-concept waned during the heyday of the behaviorists and other empirically oriented psychologists. Since the "self" did not lend itself to the experimental rigor demanded by these researchers, it was dismissed by most of them. It was considered a "mentalistic" concept, the investigation of which could lend little to the progress of psychology as a "true science."

The professional literature of the 1940's reflects a reawakening of interest in the topic of self, largely through the writings of clinically-oriented psychologists who, while generally unable to develop the technique required in the empirical research of the topic, were nonetheless committed to the construct as a useful instrument in the explanation of human behavior. (Wylie)

A current review of literature by Wiley reveals a voluminous amount of both theoretical and research material on the self-concept. It would seem that during the past two decades the construct of self or self-concept has attained a major position within the domain of professional psychological interest. (Wylie)

The variety of theoretical positions on self-concept can be viewed as a primary cause for the present diversification found in the large body of research literature on the topic. The lack of agreement on the nature of the construct has led to validation studies which in turn have led to an almost limitless collection of behaviors descriptive of modes and degrees of self-concept which have served to compound the problem of measurement.

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*William, James. Principles of Psychology (New York: Holt, Rinehart and Winston), 1890.

A basic dichotomy among self-concept theories concerns the role of the unconscious in affecting the self-concept. Springing largely from a Freudian or Neo-Freudian frame of reference is the notion that the self is a function of a person's unconscious and therefore not completely known to the individual. On the other hand, some take a phenomenological view that the self-concept is the sum total of an individual's perceptions and consequently totally a part of his consciousness.

A particular group of psychologists who have come to be known as "self" or "third force" psychologists have been responsible for much of the theoretical formulation of the phenomenological construct of self-concept and afford it a prime position in the development of personality and theory of behavior. While each of these works contributes uniquely to a construct of self, the phenomenological school which they represent does provide the most consistent and unified theoretical approach to self-concept.

Reviews of literature tend to support the fact that in this area where there is a variety of theoretical positions, there seems to be the highest degree of consistency within the phenomenological approach. The largest amount of research reported in the literature deals with self-concept at this level. Another factor which has probably influenced researchers to follow this approach is inherent in "phenomenology." That is, investigation deals only with conscious perception and rules out, at least theoretically, the influence of the unconscious. (Dubin and Dubin, Strong and Feder, Wylie)

Relating the individual's self-concept to his behavior, the phenomenological theorists postulate that the self-concept is a prime determiner of how the individual not only reacts to, but also perceives, his environment. Consequently (and important to those who elect to measure self-concept), the individual's behavior in particular situations reflects his self-concept. Since self-concept is, in a sense, private to the individual and with private access, the manner in which self-concept might be studied is through the observation of certain behaviors, physical or verbal, which theoretically reflect modes and/or degrees of self-concept.

As a matter of practical application, the person who has a negative evaluation of himself as a gregarious and social being probably would not make application for a position as a salesman. This same aspect of self-concept could be expected to affect the type of recreation he seeks and perhaps the kind of interpersonal relationships he forms.

In effect, the theory postulates that self-concept, while indeed a product of an individual's past relationships with his environment, influences greatly his behavior towards future situations. Implicit in this postulate is also the notion that if an individual's self-concept can be altered, the overt behavior of the individual can be influenced.

This point has special significance for the educator and is indeed a focal point for this investigation. Research (Borislow, Brouhoves, Fink) has seemed to indicate that children with low general self-concepts generally achieve less well in school. If this holds true, then there is the possibility of structuring the school environment so that the low, school-related self-concept can be raised, thereby increasing chances for success in school.

Since the prekindergarten project was primarily interested in the youngsters' school behavior, interest was focused on only one aspect of the self-concept, that is how the youngster perceives himself in the role of a learner. For this reason it isolated that part of the total self-concept for study and identified it as learner--self-concept (L-Sc). To clarify the meaning of learner--self-concept at this level and provide a foundation for its measurement, a series of descriptions of behavior of what might be expected of a prekindergarten youngster with a positive learner--self-concept (L-Sc) were outlined. These are:

a. This child sees self as able to perform large motor activities well. (jumping, climbing, sliding, etc.)

b. This child welcomes the introduction of new situations and varied materials. He is confident and creative in finding unconventional uses for materials and equipment, and sees self as quite capable of mastering new items and new situations.

c. This child responds to the use of artistic and musical materials. He is confident about his ability to use such items and to produce what he considers art or music.

d. This child regularly makes use of picture books and considers himself readily able to comprehend these materials.

e. This child masters his personal clothing--is able to dress himself well--and sees himself as being quite capable in this respect.

f. This child is free from self consciousness, appears self composed, and is not easily embarrassed when relating to peers.

g. This child invites others to play, sees himself as a mediator of situations, devises ways to share equipment, and is a provider for others.

h. This child is helpful in dealing with peers and sees himself as able to assist classmates experiencing some kind of difficulty. He shows affection for classmates, is good natured, and considers himself well liked in return.

i. This child responds to the activity of other children by exerting his own effort to excel. He is competitive, and sees himself as possessing a keen spirit of rivalry.

j. This child sees himself as able to find satisfying relationships with many different children.

k. This child sees himself as genuinely helpful to the teacher, voluntarily as well as upon her request. He reacts positively to teacher's directions.

l. This child feels free to make moderate tactile contact with the teacher. He sees himself as secure, well-liked, and does not feel that he must seek unusual attention from her.

m. This child feels that the teacher thinks highly of his accomplishments.

n. This child is curious about things said and done by the teacher, and is confident enough to pursue related questions he may have. He sees himself as unrestricted in this sense.

o. This child relates to the teacher by often smiling or kidding and in a generally light vein. He appears to be free from anxiety in relating to her.

The behaviors described above and their respective negative correlates provide the "measurable" variables which link general behavior with the construct of learner--self-concept. Through methods of measurement or observation of a sample of school behavior, the teacher then can become sensitive to the perceptions the child has of himself in relation to school.

The Self-Concept Instrument

Reviews of literature (Horowitz and Murphy, Strong and Feder, Wylie) show that measures of self-concept have been obtained on a large number and wide variety of instruments. Validity and reliability criteria are scarce for the existing instruments. Consequently, no one method or instrument stands out as having been accepted as a major measuring device of this construct, leaving the researcher the unhappy task of choosing among relatively unproven techniques or developing a rationale and instrument of his own.

Basically, the measuring devices can be separated into two broad catagories: those which might be called "projective-type" methods and those labeled direct report methods. With direct report methods, the subject is presented with specific situations, through Q-sort, rating scales, check lists, etc. techniques, and is asked to respond directly. These responses are taken as directly proportional to SC or aspects of SC. The projective type procedure, on the other hand, presents the subject with more ambiguous material to which he responds in a "free-association" manner. Subject's degree of SC is then inferred from patterns or styles within these responses.

As is to be expected, both methods have advantages and disadvantages. The direct-report method, while relatively easy to administer and objectively scored has been critized on the following grounds: (Combs and Soper, Updegraff).

a. There may be resistance on the part of the subject to a direct inquiry into his feelings, resulting in biased responses.

b. There may be difficulty in distinguishing between fact and fancy; or in other words, actual estimates of SC. Similarly, social expectancy might influence responses.

c. There are individual differences among subjects which affect the degree to which the subject has the verbal facility to report accurately, thereby influencing scores.

d. There may be an effect of "set" on the organization of what the subject perceives to be the situation to which he is responding, which is unpredictable in the measurement process.

Basically, projective techniques do not lend themselves to easy administration procedures and objective scoring methods. They are also criticized on their ability to provide protocol material which can be interpreted without reflecting the examiner's bias. The users of such testing materials seem to feel, however, that these shortcomings are outweighed by the broad range of responses elected by the subjects from which important clinical diagnoses might be drawn, and which might be overlooked in narrow specific responses to specific situations. Also, the verbal skills are not as crucial in projective testing situations, because there is no fixed limit of time in which a concise, highly specific response must be given. Similarly, most projective devices do not require that the subjects be able to read and write (Horowitz and Murphy).

The relative freedom allowed by projective techniques in their less demanding use of verbal and handwriting skills seems to be of great advantage when working with young, preschool, or early primary age children. Other advantages for use with this particular age group are seen as:

a. The relative lack of self-consciousness in responding to ambiguous material would lead to a more accurate "picture" of the child's, feelings.

b. At the younger ages, there is less of a chance that fixed habit patterns of perceiving would be reflected in the responses.

c. Fantasy, as stated by Amen, the source of scientific data in projection studies, is one of the most characteristic and universal activities of children 3 and 4 years of age.

The literature reveals that a variety of materials have been used to elicit responses concerning self-concept in projective-type measurement situations. Photographs, drawings, dolls, and puppets, as well as the more standardized Rorschach and TAT instruments, are among the materials used. A significant portion of research using projective-type instruments with younger children indicates that the use of pictorial representation of child-like characters in familiar, everyday situations yields consistent information concerning a child's SC (Amen; Clark and Clark; Combs and Soper; Gates; Harris; Horowitz, E. L.; Horowitz, R. E., 1939; Temple and Amen).

There has been a sufficient amount of work done with the pictorial representation-type materials to prompt Symonds to list certain criteria for the pictures:

a. The pictures should present a minimum amount of detail.

b. The pictures should be vague in theme and incomplete in content.

c. The pictures should present characters with which subjects can readily identify.

As indicated in the preceding section on the measurement of SC, the type of measuring device which seemed best suited for use with the prekindergarten youngsters was a series of projective-type pictorial representations of young children in familar surroundings. In this particular instance, since interest is focused on the aspect of SC called L-Sc, the familiar surroundings were school situations.

Through observation of prekindergarten youngsters in their classrooms and study of the objectives and techniques of the programs themselves, the kinds of situations in which children might participate and which might reflect behaviors indicative of level of L-Sc grouped themselves into three catagories. These catagories reflected situations in which the child is interacting with or reacting to:

a. The teacher
b. Classmates
c. Classroom materials

The next step was to collect a broad range of examples of children in each of these three types of situations. This was accomplished by members of the staff who visited project schools and photographed "real school life" situations. Over 200 photographs were collected and studied. After catagorizing the photos according to the type of situation depicted, the best were chosen on the basis of two criteria:

a. The clarity with with the pictures depicted the situation in which the photographed children were involved.

b. The degree to which the photographed children expressed behavior indicative of high and low L-Sc.

The selection was made by a panel of judges.

The selected photographs were then tried out with prekindergarten youngsters. The questions which we hoped would be answered were:

a. Are the children able to distinguish the behaviors depicted by the photographs?

b. Are the children able to identify with the children in the photographs?

Recognizing that method of administration might have an effect on the responses and/or responsiveness of the children, several approaches were tried. These procedures ranged from a completely open situation where the subject was free to respond in any manner, to any stimulus in the photographs, with any length of response, and to a structured questioning procedure. The result of the trial sessions can be summarized as follows:

a. The children were generally able to distinguish the behaviors represented in the photographs; however, they also became concerned with "background" materials such as books on shelves, blocks, trucks, etc., which did not pertain to the situation.

b. Identifications were made, but too often on the basis of similarity of clothing, hair sytle, or other irrelevancies.

c. The conclusion was drawn that the final testing pictures should eliminate all materials extraneous to the depicted situation, and that all children represented should be alike in general dress and appearance.

d. The administration procedure which seemed to elicit the most consistent and meaningful responses was a "structured" approach in which the behaviors of each of the children represented was mentioned and then, the subject was asked, "Which is most like you?" The child's understanding of the behavior represented could then be validated to a degree by several short questions involving his understanding of the situation.

The trial testing of the photographs gave every indication that these young children could correctly identify their sex and race. However, earlier studies presented conflicting findings in this regard (Clark and Clark; Horowita, R.E.). It was decided not to assume that all subjects would be able to correctly identify themselves by sex and race. The instrument was to control for these variables so that identification might be made on the basis of L-Sc alone. This was seen as being accomplished by developing four forms of the testing instrument; one for each of the four groups: white boys, Negro boys, white girls, and Negro girls. Care was taken to make each form equivalent in that the situations depicted would be the same with only the main characters differing according to sex and race.

The problem of developing four identical sets of testing plates, with only the sex and race of the children represented varying, was solved by having four professional illustrators work from the photographs which seemed to elicit the most discriminating responses. Not only were problems of extraneous, distracting details present in the photographs and of heterogenity of appearance of the children eliminated, but it was possible to dramatize the stimuli most associated with the behavior reflective of the L-Sc.

The facial expression and the overt physical activity were the two main elements thought to be indicative of L-Sc. The illustrators were instructed as to the use to be made of the drawings, and they suggested making stylized characters whose heads were proportionately larger than the bodies to draw attention to facial expressions. Several class situations which were described earlier did not occur naturally (while photographers were present) and could not be staged, i.e. fighting, crying. However, the illustrators were easily able to create these situations.

Sample drawings were obtained from several illustrators. The illustrator whose style seemed to convey the situation with the most clarity through the greatest economy of detail was chosen to draw the plates. A total of 12 situations were illustrated (appendix L). Each of the three types of situations were depicted by four different illustrations. Four sets of the 12 situations were produced, each set varying only in the sex and race of the characters represented. The testing instrument was thus composed of a total of 48 plates.

In administering the L-Sc the procedure was to present each of a set of 12 test plates to the child and to structure the situation verbally, carefully indicating the negative and positive behaviors depicted. The question was then asked, "which boy (girl) is most like you?" Each of the 12 situations was structured twice, making a total of 24 items on the Test. (For the first year, there were three structures for each plate, or

36 items.) Each item response was scored plus or minus and the total score was the algebraic sum of the scored items (appendix L).

In an effort to determine the level of validity of the Learner Self-concept Test (L-Sc) the prekindergarten teachers were asked in 2 separate years to rate the self-concepts of the children in their prekindergarten classes (appendix M). The 14 teachers in each year were asked to apply the paired-comparisons technique for a list of behaviors reflecting self-concept which resulted in a rank ordering of the children. The scores on the L-Sc and the teachers' rankings were correlated and the average correlation was significant (although low) in both years at .01 level (figure 7).

A second effort to determine the level of validity was based on the purported relationship of self-concept to intelligence, language achievement, race, and socioeconomic level. Low but statistically significant correlation coefficients were found between the L-Sc scores and S-B, PPVT, ITPA, race, and socioeconomic measures. These results were achieved in each of the 3 years with the coefficients increasing after the first-year revision of the L-Sc. In each of the 3 years, nonsignificant coefficients were produced between L-Sc scores and sex. This verified the assumption that neither boys nor girls would have higher learner self-concepts.

Self-Concept Findings

The data from the Learner-Self Concept testing were analyzed to answer the three questions asked previously about the programs' success with the intelligence and language objectives. The statistical results are summarized in tables 11, 12, 13, and 14. The conclusions reached from these findings are as follows:

1. The prekindergarten experiences were not effective in improving the learner self-concept of children as indicated by the findings of no significant differences between experimentals and controls for either disadvantaged or nondisadvantaged children for any of the 3 years of the study.
2. There were no differential results in learner self-concept improvement among the eight district programs over the 3 years. Only three of the 25 comparisons of experimental and control groups were significant. Two of these three favored the control groups.
3. Nursery education oriented programs were as ineffective in achieving the self-concept objective as were the cognitive programs, despite the high value claimed by the former for the affective development of the child's behavior.
4. The prekindergarten experience was of no benefit to the self-concept of children of either sex or race as indicated by lack of consistent significant differences between the experimental and corresponding control groups.
5. Nondisadvantaged children, as a whole, had a more positive self-concept than disadvantaged children, as shown by significant differences between the two groups for all 3 years of the study. This finding is unrelated to program effectiveness since experimental and control children were combined for this comparison.
6. White children, as a group, have a higher self-concept than nonwhite children. In 18 direct comparisons of white and nonwhite groups, whites scored higher 17 times with eight of the differences being significant at the .05 level (tables 13 and 14). The single difference in favor of the nonwhite group was not significant.

Figure 7

Correlation Coefficients* for Learner Self-Concept Test Presented for Each of Three Waves of Prekindergarten Children

VARIABLE CORRELATED	LEARNER SELF-CONCEPT TEST					
	Wave I - 1965-66		Wave II - 1966-67		Wave III - 1967-68	
	N	Correlation Coefficient	N	Correlation Coefficient	N	Correlation Coefficient
Teachers's Rating of Pupil S-C	294	.20	-	Not Available	297	.19
Stanford-Binet IQ	560	.15	564	.28	562	.26
PPVT Score	563	.17	564	.32	562	.25
ITPA Score	554	.13	555	.31	559	.24
Race	572	.12	564	.24	562	.10
Socioeconomic Level	572	.13	564	.23	556	.19
Sex	572	.05 N.S.	564	.07 N.S.	562	.08 N.S.
Treatment	572	.07 N.S.	564	.05 N.S.	562	.02 N.S.

*All coefficient are significant at .01 level except where "N.S." indicates nonsignificance.

Table 11

Comparison of Means on the Learner Self-Concept Test[1] of Prekindergarten Children by Socioeconomic Status and Treatment

Wave	Score	Disadvantaged		Nondisadvantaged		Combined	
		Exp.	Con.	Exp.	Con.	Dis.	Non-Dis.
I	N	249	216	52	55	465	107
	Mean	24.31	25.38	26.15	28.04	24.80	27.12
1965-66	Difference	1.07		1.89		2.32*	
II	N	297	150	78	39	447	117
	Mean	12.84	14.13	16.82	17.03	13.27	16.89
1966-67	Difference	0.29		0.74		3.62*	
III	N	280	210	44	28	490	72
	Mean	13.37	13.08	17.45	16.71	13.24	17.17
1967-68	Difference	0.29		0.74		3.93*	
TOTAL	N	826	576	174	122	1402	296
Waves I	Mean	16.47	17.97	19.77	21.92	17.09	20.66
II, III	Difference	1.50*		2.15**		3.57*	

[1] Scores for Wave I subjects were based on 36-item test; scores for Waves II and III subjects were based on 24-item form of same test

*Significant at .05 level; **Significant .1 level

Table 12

Comparison Within Districts of Group Means on the Learner Self-Concept Test for Disadvantaged Experimental and Control Children

Programs arranged in order from low congnitive-structure(traditional nursery) to high cognitive-structure in approach

Wave	Score	GREENBURGH		LONG BEACH		SP. VALLEY		HEMPSTEAD		YONKERS		MT. VERNON		SCHENECTADY		CORTLAND[1]		CORTLAND[2]	
		Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
I	N	30	28	26	27	34	21	36	28	44	33	48	38	41	54				
	Mean	22.60	28.07	21.31	25.63	26.41	27.33	23.67	26.50	24.86	21.45	24.54	24.89	25.85	26.30				
1965-66	Diff.	5.47		4.32		0.92		2.83		3.41		0.35		0.45					
II	N	32	14	26	24	27	22	47	15	43	38	43	13	37	7	19	17	23	17
	Mean	11.09	14.71	10.31	13.08	9.70	14.77	10.85	11.20	14.14	13.89	15.49	17.31	13.35	13.14	14.53	15.41	16.74	15.41
1966-67	Diff.	3.62		2.77		5.07**		0.35		0.25		1.82		0.21		0.88		1.33	
III	N	24	18	27	21	29	23	43	25	44	39	24	25	36	36	27	23	26	23
	Mean	16.96	9.67	12.41	13.14	12.97	14.78	14.07	9.92	15.14	14.51	12.17	17.20	12.00	12.36	10.33	11.65	13.50	11.65
1967-68	Diff.	7.29**		0.73		1.81		4.15		0.63		5.03*		0.36		1.32		1.85	
TOTAL	N	86	60	79	72	90	66	126	68	131	110	115	76	114	97	46	40	49	40
Wave I, II, & III	Mean	16.74	19.43	14.65	17.81	17.07	18.77	15.61	17.03	18.08	16.38	18.57	21.07	17.42	20.18	12.07	13.25	15.02	13.25
	Diff.	2.69		3.16**		1.70		1.42		1.70		2.50**		2.76		1.18		1.77	

*Significant at .05 level
**Significant at .1 level

[1] Discussion
[2] Pattern Drill

Table 13

Comparison of Means on the Learner Self-Concept Test of Disadvantaged Prekindergarten Children

Wave	Score	Treatment and Sex				Treatment and Race			
		Experimental		Control		Experimental		Control	
		1	2	3	4	1	2	3	4
		Male	Female	Male	Female	Nonwh.	White	Nonwh.	White
	N	126	123	109	107	162	87	119	97
I	Mean	24.43	24.10	24.44	26.34	23.46	25.89	25.23	25.57
1965-66	Difference	0.33		1.90		2.43*		0.34	
	Difference 1-3	0.01				1.77			
	Difference 2-4		2.24**				0.32		
	N	147	150	80	70	152	145	72	78
II	Mean	13.35	12.33	15.70	12.34	10.72	15.06	12.24	15.88
1966-67	Difference	1.02		3.36*		4.34*		3.64*	
	Difference 1-3	2.35*				1.52			
	Difference 2-4		0.01				0.82		
	N	150	130	110	100	129	151	91	119
III	Mean	13.18	13.58	14.85	11.13	12.66	13.97	11.55	14.25
1967-68	Difference	0.40		3.72*		1.31		2.70**	
	Difference 1-3	1.67				1.11			
	Difference 2-4		2.45				0.28		
TOTAL	N	423	403	299	277	443	383	282	294
	Mean	16.61	16.33	18.58	17.31	15.94	17.09	17.44	18.47
Wave I, II, & III	Difference	0.28		1.27		1.15		1.03	
	Difference 1-3	1.97*				1.50**			
	Difference 2-4		0.98				1.38**		

***Significant at .05 level; **Significant at .1 level**

Table 14

Comparison of Means on the Learner Self-Concept Test of Disadvantaged Prekindergarten Children by Treatment, Race, and Sex

Wave	Score	Experimental				Control			
		1 Nonwh. Male	2 White Male	3 Nonwh. Female	4 White Female	5 Nonwh. Male	6 White Male	7 Nonwh. Female	8 White Female
I 1965-66	N	77	49	85	38	59	50	60	47
	Mean	22.88	27.06	23.98	24.37	23.83	25.16	26.60	26.00
	Difference	4.18*		0.39		1.33		0.60	
	Difference 1-5	0.95							
	Difference 2-6		1.90						
	Difference 3-7			2.62					
	Difference 4-8				1.63				
II 1966-67	N	71	76	81	69	36	44	36	34
	Mean	11,79	14.82	9.78	15.32	14.64	16.57	9.83	15.00
	Difference	3.03*		5.54*		1.93		5.17*	
	Difference 1-5	2.85							
	Difference 2-6		1.75						
	Difference 3-7			0.05					
	Difference 4-8				0.32				
III 1967-68	N	69	81	60	70	44	66	47	53
	Mean	13.10	13.25	12.15	14.81	14.09	15.36	9.17	12.87
	Difference	0.15		2.66		1.27		3.70	
	Difference 1-5	0.99							
	Difference 2-6		2.11						
	Difference 3-7			2.98					
	Difference 4-8				1.94				
TOTAL Wave I, II, & III	N	217	206	226	177	139	160	143	134
	Mean	16.14	17.11	15.75	17.06	18.37	18.76	16.54	18.13
	Difference	0.97		1.31		0.39		1.59	
	Difference 1-5	2.23**							
	Difference 2-6		1.65						
	Difference 3-7			0.79					
	Difference 4-8				1.07				

*Significant at .05 level; **Significant at .1 level

Summary

The prekindergarten programs had as one of their objectives the enhancement of the self-concept of the children. This goal was recognized as particularly important because of its relationship to cognitive achievement. Disadvantaged children were described as deficient in both cognitive development and positive self-concepts.

An instrument was developed for the study which focused on that portion of self-concept relating to school. The instrument, Learner Self-Concept, was designed around the child's self-perception with respect to the teacher, the other children, and the materials in the prekindergarten setting.

Neither nursery nor cognitive-oriented programs were effective in altering self-concept for the total experimental population. Nor were the programs successful with any subgroup by race or sex.

Nondisadvantaged children had higher self-concept scores than disadvantaged children. White disadvantaged children also had more positive self-concepts than black disadvantaged children.

CHAPTER VII

PHYSICAL DEVELOPMENT

Another of the common objectives of the prekindergarten programs was that of "increased motor development." The original design of the study called for testing the hypothesis that "Prekindergarten programs will hasten motor development significantly beyond the maturational development of the control children." The tentative plan called for the kindergarten teachers to judge the motor development of their children. Comparisons were then to be made between prekindergarten experimental and control groups. An alternate plan called for the use of the Oseretsky Test of Motor Proficiency.

Experience during the first year indicated that neither of these plans was suitable. The Oseretsky Test, based on Russian norms, reported no reliability data. It required tasks that were potentially dangerous, and several of its subtests relied heavily on subjective judgment. The test has since been revised and is no longer designed for 4- and 5-year-olds.

In view of the major emphasis on physical health and nutritional factors in traditional nursery education, it seemed appropriate for the study to include some other aspects of the physical development of the subjects.

There is a prevalent, well-established foundation of maturational theory in traditional nursery education which stresses the interrelationship of social, emotional, intellectual, and physical factors and the intercorrelations of their development. Nursery school programs have attached equal weight of importance to each of the four areas of development; thus, much of the preschool day is devoted to activities designed to promote hygiene, physical fitness, nutrition, and satisfactory physical growth. This concern for the health and physical development of children is typically expressed in most guidelines for nursery school programs.

> Nursery schools should be developed to meet the growth needs of young children. Since young children are growing so rapidly and learn so much of value through muscular activity, they need freedom to have such experience in school. They need an active program, instead of an inactive one. Young children are handicapped, both physically and intellectually, by being made to sit still and work at tables and desks. . . .Therefore, a program that permits movement, variety of physical activity, ample time outdoors, and equipment encouraging the use of large muscles is the first challenge of nursery schools.[1]

Attention has also been focused on nutritional and fatigue considerations:

> Young people cannot be expected to go for long periods without food. The mid-morning or mid-afternoon snacks reduce fatigue. . . .Many children need an opportunity to rest in a prone position sometime during the morning or afternoon.[2]

Rounding out the health program of most nurseries is provision for dental care and immunization. Usually there is a complete physical examination for each child.

When "special" preschool programs for the disadvantaged came on the American scene, this health program package of traditional nursery schools was adopted intact, along with other program content. If health and physical development were deemed important for average nursery children, they were considered doubly important for disadvantaged youngsters. The overall deprivation of these children include much neglect in the area of health, fitness, and hygiene. In many programs for deprived youngsters, health care was the first order of business.

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[1] New York State Education Department. "Child Development Guides." Bureau of Child Development and Parent Education, 1957, p. 71.

[2] *Op. cit.*, pp. 76-77.

Program developers were very much concerned with the apparent differences between disadvantaged and nondisadvantaged children in general health and physical development. Thus, an additional question raised in the present study was how different were the two groups in physical growth? Even more important was the question of what relation could be found between prekindergarten participation and physical growth. Physical growth, for the purpose of measurement, was limited to height, weight, and visual acuity.

Treatment

The health and fitness programs were similar for seven of the eight district prekindergartens. Each program provided for physical and dental examinations with referrals for treatment where needed. The daily routine called for snacks and milk or juice at a specified time. A 10- or 15-minute rest period invariably followed snacktime. Additionally, all programs provided for vigorous daily activity ranging from formal calisthenics to incidental exercise through dance, circle games, and free play. A fresh-air play period was also provided in most programs. Additional time was used to train children in personal hygiene, with lessons in bathing, teethbrushing, disease prevention, and the like. Finally, in two of the participating districts (Hempstead and Spring Valley), the children received a complete hot lunch every day as part of their health program. While all districts gave some attention to these activities, the nursery education oriented programs devoted more time and emphasis to this area of development; Mount Vernon provided very few of the activities described above.

Procedure

With so much time and effort of the daily program tied to health and physical development considerations, the natural question was, "What effect did this portion of the program have on children over a year's time?"

Since the study involved a great number of subjects, and with data collection already a significant economic factor during the first year, it was decided that the physical data to be collected should be simple, meaningful, and reasonably inexpensive. Starting with the second year of the study, the height, weight, and visual acuity data were obtained for each subject by a school nurse-teacher. The Snellen "Illiterate E" Chart was employed to measure visual acuity. At the conclusion of prekindergarten, 11 months later, the height, weight, and visual acuity were again measured. Mean changes were computed and comparisons made for groups set up by treatment, sex, race, socioeconomic status, and school district program.

The task of collecting visual acuity data for the prekindergarten children was more difficult and presented more problems than data collection for their height and weight. First, there are obvious differences in measurement error between the two types of data. The visual acuity test is difficult to administer to preschool-aged children. Many youngsters were untestable and the group sizes in the physical data tables are smaller than in previous tables. Errors of this type are minimal in measuring height and weight. A second problem arose in attempting to quantify and scale the visual acuity of children for purposes of data analysis. It was resolved by transforming visual acuity scores to a 5-point scale ranging from satisfactory (1) to unsatisfactory (5) with 3 points between (figure 8).

Figure 8

Rating Scale for Quantifying Visual Acuity Data

Rating	VISUAL ACUITY	
	Left Eye	Right Eye
1	20/20	20/20
	20/20	20/30
	20/30	20/20
	20/30	20/30
2	20/30	20/40
	20/40	20/30
3	20/20	20/40
	20/40	20/20
	20/40	20/40
4	20/20	20/50 or above
	20/30	20/50 or above
	20/50 or above	20/20
	20/50 or above	20/30
5	20/40	20/50 or above
	20/50 or above	20/40
	20/50 or above	20/50 or above

Results

Prior studies (Cravioto, 1966; Stoch, 1963) have reported undernourished children have smaller stature. The objectives and provisions of the program assumed that disadvantaged children were also physically handicapped. This assumption was tested by examining the physical data collected during pretesting. Comparisons were then made of the height, weight, and visual acuity data for the second and third waves of children. The findings showed the nondisadvantaged children to be taller and heavier, and to have better visual acuity. However, the degree of difference between the groups would have to be greater than demonstrated to put complete confidence in this finding (table 15).

The same data were compared by race and sex. The findings in table 15 show that only visual acuity favors the white group, while height and weight are not differentiated by race. Analysis by sex showed boys tending to be taller and significantly heavier, with no difference in visual acuity.

After collecting the posttest data, it was possible to ask what effect the prekindergarten programs had on these criteria of physical development. The differences in the changes of the mean scores were the basis for the answers (table 16).

The data show that the disadvantaged controls gained more weight and significantly more height than the experimental children in both years. The investigation offers no interpretation for these surprising results. No pattern emerged for the nondisadvantaged groups. The findings, based on the gross comparisons of changes in visual acuity,

Table 15

Height, Weight, and Visual Acuity by Socioeconomic Status, Race, and Sex of Prekindergarten Children at Pretest Time

	SOCIOECONOMIC STATUS					RACE					SEX				
	Disad-vantaged		Nondisad-vantaged		Diff.	Nonwhite		White		Diff.	Male		Female		Diff.
	N	Mean	N	Mean		N	Mean	N	Mean		N	Mean	N	Mean	
HEIGHT (in inches)															
Wave II	379	41.37	115	41.78	0.41**	232	41.24	262	41.27	0.03	248	41.58	246	41.35	0.23
Wave III	396	41.27	57	41.32	0.05	170	41.67	283	41.03	0.64*	239	41.49	214	41.03	0.46*
Total	775	41.31	172	41.63	0.32**	402	41.42	545	41.15	0.27	487	41.53	460	41.20	0.33*
WEIGHT (in pounds)															
Wave II	381	38.25	115	38.50	0.25	233	38.49	263	38.14	0.35	250	38.98	246	37.62	1.36*
Wave III	397	38.53	57	38.68	0.15	169	38.55	285	38.55	0.00	239	39.42	215	37.59	1.83*
Total	778	38.39	172	38.56	0.17	402	38.52	548	38.35	0.17	489	39.19	461	37.61	1.58*
VISUAL ACUITY															
Wave II	212	1.78	90	1.43	0.35*	132	1.99	170	1.43	0.56*	154	1.64	148	1.71	0.07
Wave III	285	1.93	43	1.65	0.28	119	2.34	209	1.63	0.71*	169	1.99	159	1.78	0.21
Total	497	1.86	133	1.50	0.36*	251	2.16	379	1.54	0.62*	323	1.83	307	1.75	0.08

*Significant at .05 level
**Significant at .1 level

Table 16

Height, Weight, and Visual Acuity Changes of Prekindergarten Experimental and Control Children by Socioeconomic Status

HEIGHT

Score	Wave II				Wave III				Total Waves II and III			
	Dis.		Nondis.		Dis.		Nondis.		Dis.		Nondis.	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp .	Con.
N	246	133	77	38	235	161	39	18	481	294	116	56
Pretest Height	41.50	41.12	41.74	41.87	41.21	41.34	41.21	41.56	41.36	41.24	41.56	41.77
Posttest Height	43.60	43.58	43.81	44.05	43.37	43.79	43.31	43.72	43.49	43.69	43.64	43.95
Change	2.10	2.46	2.07	2.18	2.16	2.45	2.10	2.16	2.13	2.45	2.08	2.18
Difference	0.36*		0.11		0.29*		0.06		0.32*		0.10	

WEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Dis.		Nondis.		Dis.		Nondis.		Dis.		Nondis.	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	247	134	77	38	235	162	39	18	482	296	116	56
Pretest Weight	38.23	38.28	38.68	38.13	38.42	38.70	38.82	38.39	38.32	38.51	38.72	38.21
Posttest Weight	42.74	43.10	43.00	42.37	42.64	43.29	42.77	43.33	42.69	43.21	42.92	42.68
Change	4.51	4.82	4.32	4.24	4.22	4.59	3.95	4.94	4.37	4.70	4.20	4.47
Difference	0.31		0.08		0.37		0.99		0.33		0.27	

VISUAL ACUITY

Score	Wave II				Wave III				Total Wave II & III			
	Dis.		Nondis.		Dis.		Nondis.		Dis.		Nondis.	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	150	62	58	32	171	114	28	15	321	176	86	47
Pretest V . A.	1.88	1.53	1.47	1.38	1.75	2.18	1.61	1.73	1.81	1.95	1.51	1.49
Posttest V. A.	1.53	1.32	1.10	1.13	2.06	1.62	2.14	1.20	1.81	1.52	1.44	1.15
Change	0.35	0.21	0.37	0.25	-0.31	0.56	-0.53	0.53	0.00	0.43	0.07	0.34
Difference	0.14		0.12		0.87*		1.06		0.43*		0.27	

*Significant at .05 level

**Significant at .1 level

lacked consistency. Wave II showed no significant difference, while Wave III showed significant changes in favor of the controls. The Wave III experimental children had poorer visual acuity at the end of prekindergarten than they did at pretesting. This finding raises the question of whether the cognitive programs requiring use of more fine eye focusing could have produced the visual loss.

Table 17, however, shows that the overall experimental loss on visual acuity was actually attributable to the subjects of the noncognitive programs. It also shows that the early childhood program emphasis on physical development was not any more in evidence in the height and weight results in these districts than in the cognitive programs.

The data in table 18 shows no relationship between the program and its effectiveness by sex for any of three criteria--height, weight, and visual acuity.

The data in table 19 show no differential treatment effect by race for height and weight. However, not only was there a significant pretest difference in visual acuity in favor of the white group, but the significance in visual acuity by the Wave III experimental group is accounted for almost entirely by black children.

Based upon the 2 years of physical data analyzed, it must be concluded that prekindergarten attendance does not enhance the physical growth of disadvantaged children. Furthermore, these data, together with the psychological test data for the same children, indicate that cognitive development and physical growth bear no positive relationship. In fact, the evidence tends to indicate that these two aspects of development may be somewhat negatively related since the experimental children, while making greater gains in IQ and language ability, compared unfavorably with control children in physical growth during the year of prekindergarten. To sum up, it can be said that the average disadvantaged experimental child gained 5.2 IQ points more but grew .34 pounds and .33 inches less than his control counterpart during the year of prekindergarten attendance. The inclusion of daily hot lunches in the program of two of the participating school districts had no effect on these findings. Preschoolers in Hempstead and Spring Valley gained no more in height and weight than did children in school districts where they received only a snack each day.

Table 17

Height, Weight, and Visual Acuity Changes of Prekindergarten Experimental and Control Children Grouped by Type of Prekindergarten Program

HEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Nursery		Cognitive		Nursery		Cognitive		Nursery		Cognitive	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	129	80	117	53	85	47	150	114	214	127	267	167
Pretest Height	41.88	41.41	41.09	40.68	41.29	41.85	41.17	41.13	41.64	41.57	41.13	40.99
Posttest Height	44.08	43.68	43.08	43.43	43.44	44.43	43.34	43.53	43.82	43.95	43.22	43.50
Change	2.20	2.27	1.99	2.75	2.15	2.58	2.17	2.40	2.18	2.38	2.09	2.51
Difference	0.07		0.76*		0.43*		0.23		0.20		0.42*	

WEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Nursery		Cognitive		Nursery		Cognitive		Nursery		Cognitive	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	130	81	117	53	85	48	150	114	215	129	267	167
Pretest Weight	39.08	38.56	37.28	37.85	38.41	39.27	38.43	38.46	38.82	38.82	37.93	38.26
Posttest Weight	44.08	43.16	41.26	43.02	42.11	44.19	42.94	42.91	43.30	43.54	42.20	42.95
Change	5.00	4.60	3.98	5.17	3.70	4.92	4.51	4.45	4.48	4.72	4.27	4.69
Difference	0.40		1.19*		1.22*		0.06		0.24		0.42	

VISUAL ACUITY

Score	Wave II				Wave III				Total Waves II & III			
	Nursery		Cognitive		Nursery		Cognitive		Nursery		Cognitive	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	77	36	73	26	62	37	109	77	139	73	182	103
Pretest V.A.	2.08	1.72	1.67	1.27	1.95	1.92	1.64	2.31	2.02	1.82	1.65	2.05
Posttest V.A.	1.29	1.25	1.79	1.42	2.74	1.32	1.67	1.77	1.94	1.29	1.72	1.68
Change	0.79	0.47	-0.12	-0.15	-0.79	0.60	-0.03	0.54	0.08	0.53	-0.07	0.37
Difference	0.32		0.03		1.39*		0.57		0.45		0.44	

*Significant at .05 level
**Significant at .1 level

Table 18

Height, Weight, and Visual Acuity Changes of Prekindergarten Prekindergarten Experimental and Control Children by Sex

HEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Male		Female		Male		Female		Male		Female	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp .	Con.
N	116	69	130	64	125	84	110	77	241	153	240	141
Pretest Height	41.62	41.35	41.39	40.88	41.41	41.51	40.99	41.16	41.51	41.44	41.21	41.03
Posttest Height	43.84	43.81	43.39	43.33	43.54	44.02	43.18	43.53	43.68	43.93	43.30	43.44
Change	2.22	2.46	2.00	2.45	2.14	2.51	2.19	2.37	2.17	2.49	2.49	2.41
Difference	0.24		0.45*		0.37*		0.18		0.32 *		0.32 *	

WEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Male		Female		Male		Female		Male		Female	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	117	70	130	64	124	85	111	77	241	155	241	141
Pretest Weight	39.05	38.90	37.49	37.59	39.12	39.86	37.64	37.42	39.09	39.43	37.56	37.50
Posttest Weight	43.65	43.69	41.93	42.47	42.94	44.55	42.30	41.90	43.29	44.16	42.10	42.16
Change	4.60	4.79	4.44	4.88	3.82	4.69	4.66	4.48	4.20	4.73	4.54	4.66
Difference	0.19		0.44		0.87		0.18		0.53**		0.12	

VISUAL ACUITY

Score	Wave II				Wave III				Total Waves II & III			
	Male		Female		Male		Female		Male		Female	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	67	33	83	29	87	60	84	54	154	93	167	83
Pretest V.A.	1.99	1.30	1.80	1.79	1.86	2.35	1.64	2.00	1.92	1.98	1.72	1.93
Posttest V.A.	1.78	1.24	1.34	1.41	2.11	1.90	2.00	1.31	1.97	1.67	1.67	1.35
Change	0.21	0.06	0.46	0.38	-0.25	0.45	-0.36	0.69	-0.05	0.31	0.05	0.58
Difference	0.15		0.08		0.70**		1.05*		0.36		0.53**	

*Significant at .05 level
**Significant at .1 level

Table 19

Height, Weight, and Visual Acuity Changes of Prekindergarten
Prekindergarten Experimental and Control Children by Race

HEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Nonwh.		White		Nonwh.		White		Nonwh.		White	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	129	75	117	58	97	59	138	102	226	134	255	160
Pretest Height	41.87	41.13	41.09	41.10	41.34	42.05	41.12	40.93	41.64	41.54	41.11	40.99
Posttest Height	43.88	43.53	43.29	43.64	43.66	44.61	43.17	43.31	43.79	44.01	43.23	43.43
Change	2.01	2.40	2.20	2.54	2.32	2.56	2.05	2.38	2.15	2.47	2.12	2.44
Difference	0.39*		0.34		0.24		2.33		0.32*		0.32*	

WEIGHT

Score	Wave II				Wave III				Total Waves II & III			
	Nonwh.		White		Nonwh.		White		Nonwh.		White	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	129	76	118	58	96	59	139	103	225	135	257	161
Pretest Weight	38.78	37.97	37.64	38.67	38.11	38.83	38.63	38.62	38.49	38.35	38.18	38.64
Posttest Weight	43.43	42.72	41.99	43.60	42.28	43.27	42.88	43.30	42.94	49.96	42.47	43.41
Change	4.65	4.75	4.35	4.93	4.17	4.44	4.25	4.68	4.45	4.61	4.29	4.77
Difference	0.10		0.58		0.27		0.43		0.16		0.48**	

VISUAL ACUITY

Score	Wave II				Wave III				Total Waves II & III			
	Nonwh.		White		Nonwh.		White		Nonwh.		White	
	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
N	79	35	71	27	68	40	103	74	147	75	174	101
Pretest V.A.	2.13	1.80	1.61	1.19	2.21	2.45	1.46	2.04	2.16	2.15	1.52	1.81
Posttest V.A.	1.72	1.34	1.32	1.30	2.90	2.00	1.50	1.42	2.27	1.69	1.43	1.39
Change	0.41	0.46	0.29	-0.11	-0.69	0.45	-0.04	0.62	-0.11	0.46	0.09	0.42
Difference	0.05		0.40		1.14*		0.66*		0.57**		0.33	

*Significant at .05 level

**Significant at .1 level

CHAPTER VIII

THE CARRY-OVER EFFECTS ON READINESS AND ACHIEVEMENT

This study was conducted in response to the recognition by the districts that the disadvantaged children in their schools were not achieving in comparison with nondisadvantaged children. The lack of success was evident in the earliest grades. It was essential, therefore, that the study be designed to assess not only the immediate effects of the prekindergarten programs but also their impact on achievement in the early grades.

If prekindergarten programs are judged successful but the participating children go on in school and fail (or are failed), then it must be concluded that the objectives on which the programs were assessed were inappropriate. The prekindergarten educational effort would have been wasted. On the other hand, if the evaluation declared the prekindergarten programs unsuccessful and these children went on in the grades, in the traditional manner, and did achieve, then it also must be concluded that inappropriate goals were assessed. The prekindergarten programs would, in fact, have been an educational remedy to the educational problem of the disadvantaged. Thus, the carry-over effects of the prekindergarten experiences are a critical focal point in the final analysis.

Two major studies have concerned themselves with the differences between primary school children who did and did not participate in preschool (Wolff, Westinghouse). Both showed no differences between these groups in educational attainment. When the earlier Wolff study reported no differences between Head Start and non-Head Start children, two defensive replies were heard. The loudest claimed that the achievements of Head Start program were dissipated by the schools' failure to build upon these achievements. To a lesser extent, it was claimed that, although no differences were yet visible in the primary grades, there would be a "latent" or "sleeper" effect accruing from the experience. The contribution of Head Start might not manifest itself until as late as high school when it would affect the dropout rate.

There was a third possible explanation for the lack of differences; that is, the Head Start programs made no significant contribution to the educational preparation of the disadvantaged child. Unfortunately, neither the Wolff nor the Westinghouse study was designed to test this third possibility.

These post-hoc studies nevertheless raise an issue which itself needs to be tested. If theoretically successful prekindergarten programs are so dependent upon revised methods (Follow-Through Programs) in the primary school for educating disadvantaged children successfully, is it not conceivable that these "new" methods alone could achieve the same results? If this were the case, the educational efforts in behalf of the disadvantaged could be directed toward major improvement of instruction itself rather than the organization of instruction for still younger preschool children as is currently proposed.

The performance of both experimental and control children on the Metropolitan Readiness Tests (MRT) at the end of kindergarten was one criterion used to evaluate the carry-over effect of the prekindergarten programs. Three waves of children were tested. The attrition rate for the 3-year period was 18 percent. It was not assumed that this loss in subjects was random. Therefore, an analysis of covariance was used in assessing the comparative results on the MRT, using the pretest scores on the Binet and PPVT as Covariates.

In each of the 3 years and for the three Waves combined, the disadvantaged experimentals scored significantly higher than the controls.

Table 20

Metropolitan Readiness Tests at end of Kindergarten
Adjusted Means for Children Grouped by Socioeconomic Status and Treatment

Wave	Score	Disadvantaged		Nondisadvantaged	
		Exp.	Con.	Exp.	Con.
I	N	195	161	34	45
	Adjusted Mean	44.14	41.40	60.20	61.18
1965-66	Difference	2.74*		0.98	
II	N	271	183	68	37
	Adjusted Mean	47.88	44.77	63.07	60.95
1966-67	Difference	3.11*		2.12	
III	N	244	181	38	26
	Adjusted Mean	52.57	49.51	62.62	68.05
1967-68	Difference	3.06*		5.43	
TOTAL	N	710	525	140	108
Wave I, II, & III	Adjusted Mean	48.42	45.43	62.28	62.73
	Difference	2.99*		0.45	

*Significant at .05 level; **Significant at .1 level

For the nondisadvantaged, none of the 3 years or their total showed a significant difference. While the results achieved with the disadvantaged are encouraging, the gap that represents their disadvantagement is still considerable.

The average followup effect of 1 year of preschool was to close the gap by 3 IQ points (2.99 in table 20). To eliminate the additional 14.31 point difference (62.73 versus 48.42) between these disadvantaged and nondisadvantaged children would require the equivalent of almost 5 more years of compensatory education prior to age 5, or a total equivalent of 6 years. Obviously, the rate of improvement shown, although statistically significant, is not educationally adequate. Fortunately, these results are average effects and some of the cognitive programs were much more successful in their carry-over to kindergarten.

The question of the followup effect of nursery versus cognitive programs in kindergarten was of basic concern. The MRT data for children from the four districts operating cognitive programs were compared with the results for children from the four schools with the traditional nursery orientation. The kindergarten children who had been in cognitive programs were significantly superior to their classmates who served as controls for the study. The cognitive programs had provided a modest head start for the academic achievement to be attained in kindergarten. The mean readiness score of the kindergarten children from the cognitive prekindergartens was also significantly higher than the mean readiness score of the children who had been through child development prekindergarten programs.

Table 21

Metropolitan Readiness Tests at end of Kindergarten
Comparison of Cognitive-Structured with Traditional Nursery Programs

Wave	Score	Nursery		Cognitive	
		1	2	3	4
		Exp.	Con.	Exp.	Con.
TOTAL Wave I, II, & III	N	332	234	378	291
	Adjusted Mean	47.15	45.88	49.55	45.06
	Difference	1.27		4.49*	
	Difference 1-3	2.40*			
	Difference 2-4		0.82		

*Significant at .05 level

In the four districts operating what has been referred to as nursery or child development programs, different results were achieved. These programs failed to provide the children with greater readiness than their controls on the MRT. These findings agree with those reported by Wolff and Westinghouse. However, they do not support the unqualified recommendation made in the Westinghouse study for year-long rather than summer programs. Critically more important than the duration of the program is the kind of program orientation and approach.

A more discriminating analysis of the carry-over effects was made on the basis of the individual district results. As shown in table 22, comparison of MRT means for each district for the three waves of subjects produced six significant differences, all in favor of the experimentals. Five of these significant differences occurred in districts operating cognitive programs; the sixth was in Hempstead. In some districts, the size of the difference attributed to 1 year of prekindergarten would have totally closed the gap between the

Table 22

Metropolitan Readiness Tests at end of Kindergarten Comparison Within Districts of Adjusted Means for Disadvantaged Experimental and Control Children

Wave	Score	GREENBURGH		LONG BEACH		SP. VALLEY		HEMPSTEAD		YONKERS		MT. VERNON		SCHENECTADY		CORTLAND[1]		CORTLAND[2]	
		Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
I	N	30	23	21	22	26	14	24	22	30	23	34	29	30	28				
	Adjusted $\bar{X}$	42.41	44.06	41.78	41.37	40.62	41.65	42.90	34.22	44.43	41.76	51.45	50.35	42.67	35.54				
1965-66	Diff.	1.65		0.41		1.03		8.68*		2.67		1.10		7.13*					
II	N	29	14	23	26	24	21	48	18	42	37	36	19	34	32	17	16	18	16
	Adjusted $\bar{X}$	39.99	40.73	39.81	41.49	45.25	42.13	54.33	55.68	43.14	43.80	57.88	51.68	42.70	38.57	51.66	51.41	54.30	51.41
1966-67	Diff.	0.74		1.68		3.12		1.35		0.66		6.20**		4.13		0.25		2.89	
III	N	20	13	25	18	26	23	36	20	37	35	21	22	31	31	26	19	22	19
	Adjusted $\bar{X}$	39.91	45.64	54.23	56.02	50.14	49.42	61.11	59.80	46.95	39.42	60.10	52.23	55.79	53.32	52.89	44.46	48.56	44.46
1967-68	Diff.	5.73		1.79		0.72		1.31		7.53*		7.87*		2.47		8.43*		4.10	
TOTAL	N	79	50	69	66	76	58	108	60	109	95	91	70	95	91	43	35	40	35
Wave I, II, & III	Adjusted $\bar{X}$	40.87	43.55	45.49	45.18	45.58	45.19	53.93	49.27	44.62	41.45	55.81	51.30	46.96	42.90	52.79	48.08	51.24	48.08
	Diff.	-2.68		0.31		0.39		4.66*		3.17**		4.51*		4.06*		4.71		3.16	

*Significant at .05 level
**Significant at .1 level

[1] Discussion
[2] Pattern Drill

middle and lower socioeconomic groups had there been a second year of preschool of equal effectiveness. The remaining 19 comparisons are not significant. However, eight of them were in favor of the controls. Seven of the eight occurred in the districts operating the child development prekindergarten programs.

Table 23

Metropolitan Readiness Test at end of Kindergarten
Adjusted Means for Disadvantaged Children by Treatment and Sex

Wave	Score	Experimental		Control	
		1	2	3	4
		Male	Female	Male	Female
I 1965-66	N	101	94	80	81
	Adjusted Mean	42.67	45.72	40.48	42.30
	Difference	3.05**		1.82	
	Difference 1-3	2.19			
	Difference 2-4		3.42**		
II 1966-67	N	130	141	94	89
	Adjusted Mean	47.37	48.35	44.54	45.01
	Difference	0.98		0.47	
	Difference 1-3	2.83			
	Difference 2-4		3.34**		
III 1967-68	N	134	110	94	87
	Adjusted Mean	51.48	53.93	48.29	50.81
	Difference	2.45		2.52	
	Difference 1-3	3.19**			
	Difference 2-4		3.12		
TOTAL Wave I, II, & III	N	365	345	268	257
	Adjusted Mean	47.64	49.26	44.77	46.11
	Difference	1.62		1.34	
	Difference 1-3	2.87*			
	Difference 2-4		3.15*		

*Significant at .05 level; **Significant at .05 level

The data in table 23 (MRT and Sex) are not consistent enough to conclude that the carry-over effect from prekindergarten was greater for girls than for boys. The MRT scores for both experimental and control girls were higher than those for boys. This replicates results of numerous studies which show girls superior to boys in achievement in primary school. However, both male and female experimental groups exceed the readiness performance of their respective controls in all comparisons, several of which are statistically significant.

Table 24 presents the data on carry-over effects and race. The MRT means for experimental black children exceeded in every case the means for the black controls. Likewise, the experimental white children exceeded the control white children on the MRT testing in every comparison. In more than half the cases, the comparisons were statistically significant.

Despite adjustments made for the initial differences on intelligence and language between white and nonwhite groups, the carry-over effect was greater for the white than the nonwhite experimental groups. Moreover, the unadjusted differences between the white and nonwhite groups on the MRT are dramatically larger than those produced by the covariance adjustment. Second-order interactions are contained in Appendix J.

The design of the study called for a followup of the effects of prekindergarten through second grade. The presupposition was that the resultant differences at the end of prekindergarten would be large enough to follow up immediately in kindergarten, then in first grade, and finally in second grade.

Table 24

Metropolitan Readiness Tests at end of Kindergarten
Adjusted Means for Disadvantaged Children by Treatment and Race

Wave	Score	Experimental		Control	
		1	2	3	4
		Nonwh.	White	Nonwh.	White
I 1965-66	N	129	66	99	62
	Adjusted Mean	43.00	46.58	40.34	42.88
	Difference	3.58**		2.54	
	Difference 1-3	2.66			
	Difference 2-4		3.70**		
II 1966-67	N	145	126	92	91
	Adjusted Mean	47.55	48.27	44.03	45.51
	Difference	0.72		1.48	
	Difference 1-3	3.52*			
	Difference 2-4		2.76		
III 1967-68	N	115	129	82	99
	Adjusted Mean	52.61	52.56	50.79	48.44
	Difference	0.05		2.35	
	Difference 1-3	1.82			
	Difference 2-4		4.12*		
TOTAL Wave I, II, & III	N	389	321	273	252
	Adjusted Mean	47.36	49.72	44.62	46.29
	Difference	2.36*		1.67	
	Difference 1-3	2.74*			
	Difference 2-4		3.43*		

*Significant at .05 level; **Significant at .1 level

Of the three waves of prekindergarten children, the first showed the least promising results. The disadvantaged experimental group experienced a loss (.9) in mean IQ. Analysis of the data by district showed only four significant differences out of a possible 21 on the three measures used (S-B, PPVT, and ITPA). Three of these differences were found in Schenectady (tables 2, 6, and 9). The Schenectady program also accounted for one of the two significant differences on the MRT in the followup of Wave I at the end of kindergarten. As this was the only program to produce and sustain positive results, the first- and second-grade testing of Wave I children was limited to Schenectady.

The Metropolitan Achievement Tests (MAT) Primary I Battery (exclusive of the arithmetic subtest) was administered at the end of first grade. The achievement of the children who had attended prekindergarten was still found to be significantly better than that of the controls:

Table 25

Metropolitan Achievement Tests--Primary I Battery
Adjusted Means for Experimental and Control Children
at End of First Grade

Schenectady

Wave	Score	Exp.	Con.
I 1965-66	N	27	34
	Adjusted Mean	58.23	49.58
	Difference	8.65**	

**Significant at .1 level

One year later at the end of second grade, these children were tested again, this time with the MAT Upper Primary Reading Battery. Results of this testing, however, indicated that the earlier significant differences were completely washed out after the third year;

Table 26

Metropolitan Achievement Tests--Upper Primary Reading
Adjusted Means for Experimental and Control Children
at End of Second Grade

Schenectady

Wave	Score	Exp.	Con.
I 1965-66	N	24	30
	Adjusted Mean	67.09	67.99
	Difference	0.09	

The Wave II children made a significantly better showing over their controls than did Wave I at the end of prekindergarten. The entire Wave II population was followed through first grade to assess the carry-over to achievement. The total MAT Primary I Battery was administered.

For the total Wave II population the disadvantaged experimentals were significantly higher in mean score than their controls. Such was not the case for the nondisadvantaged groups:

Table 27

Metropolitan Achievement Tests--Primary I Battery
Adjusted Means for Children Grouped by Socioeconomic Status and Treatment
Wave II

Wave	Score	Disadvantaged		Nondisadvantaged	
		Exp.	Con.	Exp.	Con.
II 1966-67	N	246	153	53	32
	Adjusted Mean	111.31	103.77	145.08	142.22
	Difference	7.54*		2.86	

*Significant at .05 level

These findings were received with mixed judgments regarding the effectiveness of the prekindergarten programs for later achievement. The mean difference between the experimental and disadvantaged control groups (111.31 versus 103.77) represented an improvement. Nevertheless, the difference that remained (111.31 versus 142.22) represented three times as much improvement still needed to eradicate the educational disadvantagement.

Another analysis of the first-grade achievement data was made comparing results for children from cognitive and nursery programs. As with the readiness analysis, the carry-over effect was observed only with children from the cognitive prekindergarten programs. These children were significantly superior to their controls in first grade. However, they were no longer superior to the first-grade children who had attended the nursery oriented preschool programs.

Table 28

Metropolitan Achievement Tests--Primary I Battery
Comparison of Cognitive-Structured with Traditional Nursery Programs
Wave II

Wave	Score	Nursery		Cognitive	
		1	2	3	4
		Exp.	Con.	Exp.	Con.
	N	107	63	139	90
Wave 1966-67	Adjusted Mean	110.92	105.65	111.61	102.47
	Difference	5.27		9.14*	
	Difference 1-3	0.69			
	Difference 2-4		3.18		

*Significant at .05 level

Females, both experimental and control, continued to demonstrate a higher performance on the MAT than males, and to a greater extent the carry-over in the MAT performance was reflected in the scores of the girls.

Table 29

Metropolitan Achievement Tests--Primary Battery
Adjusted Means for Disadvantaged Children by Treatment and Sex
Wave II

Wave	Score	Experimental		Control	
		1	2	3	4
		Male	Female	Male	Female
II 1966-67	N	116	130	75	78
	Adjusted Mean	106.80	115.38	100.12	107.22
	Difference	8.58*		7.10	
	Difference 1-3	6.68			
	Difference 2-4		8.16*		

*Significant at .05 level

As on the Readiness Tests, both black and white experimentals demonstrated a carry-over effect; the white experimentals were superior in average MAT scores. The average performance of the white experimentals ranked them 14 percentile points above the black experimentals. This represents a significant difference in carry-over effect by race. Second-order interactions are contained in Appendix K.

Table 30

Metropolitan Achievement Tests--Primary I Battery
Adjusted Means for Disadvantaged Children by Treatment and Race
Wave II

Wave	Score	Experimental		Control	
		1	2	3	4
		Nonwh.	White	Nonwh.	White
	N	136	110	78	75
II	Adjusted Mean	107.24	116.45	99.54	108.03
1966-67	Difference	9.21*		8.49	
	Difference 1-3	7.70**			
	Difference 2-4		8.42**		

*Significant at .05 level
**Significant at .1 level

Summary

Prekindergarten programs were introduced as a potential deterrent to the learning difficulties that disadvantaged children were experiencing in the early school years. To be judged effective, these programs not only had to produce immediate effects after prekindergarten but more lasting effects on later readiness and achievement. This study assessed these carry-over effects for as long as 3 years after prekindergarten.

The carry-over effect of preschool through kindergarten was conclusive. The programs produced a significant difference on readiness between disadvantaged kindergarten children who had been in preschool and their classmates who had served as controls. However, this average difference would have had to have been five times as large for the disadvantaged experimental children to have equalled the readiness of their nondisadvantaged classmates.

The average carry-over effect was not equally distributed between cognitive and child development programs. The cognitive programs alone accounted for the significant difference and were almost four times as effective as the traditional nursery programs in closing the gap with the nondisadvantaged children.

Unlike the disadvantaged children, the nondisadvantaged children did not sustain a carry-over effect to readiness. Nondisadvantaged children who had served as prekindergarten controls scored as high on readiness tests as did the experimentals.

The disadvantaged children continued to demonstrate the beneficial effects of prekindergarten through first grade. The experimental children scored significantly higher on achievement than their first-grade classmates who had been controls during two prekindergarten years. Once again, the significant difference in transfer effect was attributable to the cognitive rather than the nursery programs.

The achievement scores of girls and of white children accounted for a larger portion of the carry-over effect than did the scores of boys and black children.

The first-grade achievement scores were no different for nondisadvantaged children who had or had not been in prekindergarten.

The follow up through second grade was limited to Schenectady, the only district whose program had notable success in the first year of the study. Schenectady was one of the four districts operating a cognitive program. The significant results achieved by this program, which were sustained through first grade, were no longer visible at the end of second grade.

CHAPTER IX

RECOMMENDATIONS

The recommendations that follow are made in the hope that they will influence decision-making at all levels as it relates to prekindergarten programs for educationally disadvantaged children. If the reader fails to find supportive data for some of these recommendations, the culpability rests with the investigator. He has extended his prerogative beyond the bounds of his discipline in the frustrating realization that even had the study been flawless (which it was not), both the state of the art and the nature of the problem did not permit significant elements to have been measured, analyzed, and reported upon. These recommendations have been made in terms of what in general is practically feasible, rather than what might be ideally desirable.

Recommendation I. Prekindergarten programs intending to prevent the educational gap that later results in the primary grades between disadvantaged and nondisadvantaged children should have objectives which are primarily cognitive-language in nature. Emphasis in the programs should be given to direct instruction toward cognitive goals, in an environment which does not inhibit normal social, emotional, and physical development. This priority should be so manifested that it is dominantly evident to the observer of the program. The prekindergarten class should resemble a modified kindergarten or first grade more than a modified nursery class. Ideally, it should most resemble a clinical setting in a learning disability center.

Recommendation II. Short-term or summer programs cannot be expected to provide sufficient educational compensation and should not be relied on exclusively. Where resources are critical, year-long programs for fewer children should be substituted for summer programs for larger numbers of children. However, more critical than the duration of the program is the need that it be cognitively oriented.

Recommendation III. No less than one-half of each child's time should be spent with activities leading to specific cognitive-formal language behaviors. In 3-hour a day programs, at least 90 minutes a day should be spent by the child on activities which are intrinsically cognitive as distinct from activities which have some cognitive component.

Recommendation IV. Based on the results achieved by the most successful programs, to completely close the educational gap between the socioeconomic groups on the behaviors studied would require at least 2 years of prekindergarten schooling. The same results might also be achieved by improving the quality or increasing the amount of cognitive instruction within the 1 year of prekindergarten.

Recommendation V. No research, including this study, exists that demonstrates the relative efficacy of specific cognitive activities for achieving specific cognitive goals with disadvantaged preschoolers. Until such studies are completed, programs should not be restricted to any particular set of currently available instructional materials. Selection should be made from existing materials, apart from their general pedagogical merit, on their stated intent to produce cognitive outcomes. Once selected, provision should be made to insure the use of these materials in the programs for their cognitive ends.

Recommendation VI. The results achieved with the Edison Responsive Environment (ERE) machines indicate they were not suitable for solution of this educational problem.

Recommendation VII. Undoubtedly, both kindergarten and first-grade teachers, as well as nursery and day-care center staff, have not been trained to remediate the lag in cognitive development for disadvantaged children. Ideally, teachers with markedly different training would be desirable. However, until their arrival, primary grade teachers given special training, rather than nursery teachers given special training, would function in greater accord with a cognitive program leading to educational compensation goals.

Recommendation VIII. Heterogeneous grouping by socioeconomic status is not of itself an effective treatment for remedying the educational deficits of the disadvantaged.

Recommendation IX. Process intervention research should be substituted for evaluative research for the next several years. The former should be designed to engineer instructional packages necessary to remedy as totally as possible the cognitive-language deficiencies which prevent equal education attainment for our disadvantaged young.

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APPENDIX A

SAMPLE ATTRITION BY YEAR

	Original Sample Pretested	Number Posttested	1st Year Attrition	No. Tested in Kindergarten	2nd Year Attrition	No. Tested in 1st Gr.	3rd Year Attrition
Wave 1 1965-66	774*	569	205	435	134	62**	---
Wave 2 1966-67	756	665	91	559	106	484	75
Wave 3 1967-68	698	571	127	489	82	---***	---
Total 3 Waves	2228	1805	423	1483	322	546	---

*Includes 54 subjects in New Rochelle who were dropped when this district withdrew from study.

**Only the Schenectady subjects of the Wave I Sample were administered the 1st Grade Battery.

***Have not yet reached 1st grade.

APPENDIX B-1

PUPIL IDENTIFICATION SCHEDULE

Child's Name: ______________________________ **Sex:** __________

Address: ______________________________ **Phone No.** __________

Date of Birth: ____________________ **City of Birth:** __________

Father's Name: ____________________ **Occupation**[1] ____________________

Ed.--Highest grade completed[2] __________ ____________________ **Hours/wk** __________

Mother's Name: ____________________ **Occupation**[1] ____________________

Ed.--Highest grade completed[2] __________ ____________________ **Hours/wk** __________

Approximate gross family income (before deductions): Yearly $ __________ **Weekly $** __________

Other children:

Name	**Age**	**Occupation or Grade & School**

Has this child ever attended nursery school? __________ **If so, when ?** ____________________

Where? ______________________________

[1] Give specific job title and indicate nature of duties performed.

[2] Include study beyond high school.

APPENDIX B-2

PUPIL IDENTIFICATION SCHEDULE

1968 Posttesting

Note: This data sheet is to be completed on the basis of currently obtained information in order that changes in occupation and income may by noted and that previously obtained information may be verified.

Child's Name:______________________________ **Sex**__________

Address:______________________________ **Phone No.**__________

Date of Birth:____________________ **City of Birth:**__________

Father's Name:______________ **Occupation** ______________

Ed.--Highest grade completed __________ ______________ **Hours/wk**__________

Mother's Name:______________ **Occupation** ______________

Ed.--Highest grade completed __________ ______________ **Hours/wk**__________

Approximate gross family income (before deductions): Yearly $__________ **Weekly $**__________

Has this child ever attended nursery school?__________ **If so, when?**__________

Where?______________________________

NOTES:

APPENDIX C

INSERVICE WORKSHOP SCHEDULE 1965-66

Date	District	Speaker
October 22	Hempstead	Dr. Margaret Yonemura, Director Queens College Early Childhood Center
November 5	Long Beach	Class Observations
November 19	Mount Vernon	Mrs. Nancy Rambusch, Director Mount Vernon Children's Center
December 3	Schenectady	Dr. Carl Bereiter and Mr. Sigfried Engelmann Institute for Research on Exceptional Children University of Illinois
December 17	Spring Valley	Mrs. Madeleine Siemann, Director The Emerson School, New York City
January 7	Yonkers	Dr. Egon Mermelstein, Assistant Professor School of Education, Hofstra University
January 28	Greenburgh	Dr. Vito Gioia, Psychologist Schenectady Public Schools
		Mr. Fred Baruchin, Mr. Custer Quick Project Consultants
February 11	Hempstead	Dr. Lucile Lindberg, Professor of Education Queens College
February 25	Schenectady	Dr. John Bolvin, Director of Field Operations Learning Research and Development Center University of Pittsburgh
March 11	Mount Vernon	Mrs. Judith Passmanick, Curriculum Specialist Mobilization for Youth, New York City
March 25	Spring Valley	Teacher Discussion--Tested Techniques and Practices
April 22-23	Bank Street College New York City	Symposium: Perspectives on Learning Visiting Lecturer: Basil Bernstein, University of London
May 6	Yonkers	Dr. Vera John, Associate Professor Yeshiva University
June 10	Spring Valley	Miss Alice Meeker, Professor and Consultant, Early Childhood Education Paterson State College, Wayne, New Jersey

APPENDIX D-1

PREKINDERGARTEN PROJECT
EVALUATION OF CLASSROOM SITUATIONS
1965-66

Directions

This rating instrument contains five different statements which provide general categories of reference for the evaluation of classroom teaching performance. The items are based upon traits generally considered to be characteristic of effective teaching.

This evaluative technique is called a "paired comparisons" system. It is a rating scheme which is acknowledged by psychometric experts to be one of the most highly reliable instruments to be found for the purposes of rating essentially covert criteria.

For each trait to be considered, there is a separate rating grid. Teachers' names are listed alphabetically down the left side and across the top of each sheet. Horizontal lines, of course, represent the rows while the vertical lines are columns. The teacher whose name appears at the left side of the first row is compared, for a trait, with every other teacher listed in the columns. If the rater thinks the former is more effective for the trait than the latter, then the former receives a "1" rating opposite his row name and under the latter's column name. (Actually this is the intersection of the former (row) and latter (column)

Immediately thereafter, the latter teacher's name is also found in his row designation. Where he would have been compared with the former, a "0" is entered. This is the reciprocal of the earlier entry. If the former has already been found higher than the latter, for the given trait, then the latter cannot be found higher than the former, when they are compared again for the same trait. Making two reciprocal entries at a time, at intersections of two names, facilitates completion of the instrument while it simultaneously minimizes inconsistencies.

Note the following example:

Trait One. --

	Barbara	Mary	Ruth	Tom	Total
Barbara		1	0	0	
Mary	0		0	0	
Ruth	1	1		0	
Tom	1	1	1		

Barbara is better in trait one than Mary. Therefore, a "1" is entered in the box opposite Barbara's name and under Mary's name (the intersection of Barbara, Mary). If Barbara has a "1" rating when compared with Mary, then Mary's rating when she is compared with Barbara must be the reciprocal "0" Therefore a "0" is entered in the box opposite Mary's name and uner Barbara's name (the intersection of Mary, Barbara).

At the conclusion of an observational visit, the rater should compare that teacher with every other teacher who has already been observed, for each of the five traits. Consequently, comparisons will be made regularly as the observational visits continue.

For research purposes, it is important that ratings be based exclusively on the judgment of the observer. Therefore, please refrain from discussing the ratings to be assigned to a teacher until the entire schedule of observation, for all teachers, has been completed.

.APPENDIX D-3

Prekindergarten Project

Guidelines For Teacher Ratings

Since the paired comparisons rating instrument which you are using involves criteria for choosing between pairs of teachers observed within a 7 week range of observational visits, the following material is offered to serve as a guide and repository for the running collection of data. It is expected that the accumulation of information about early observations will facillitate the comparisons to be made with these teachers and those observed in the later visits.

Categories for Evaluation

Clarity of Purpose

The objectives of the lesson are readily apparent to the observer, and are written in behavioral terms The teacher has a clear understanding of what she wants the children to achieve. She functions generally in respect to her objectives, and upon recognizing a digression from these aims, returns to the original goal. She is flexible in her timing, however, and switches from planned activities to other activities or to unstructured situations where this is warranted.

The fundamental understanding associated with this category is that certain kinds of pupil behavior are desirable outcomes of the efforts of teachers. The rater, therefore, is concerned with the teacher's purposeful desires to bring about changes in the way her pupils think, act, or perform; her verbal and other efforts to accomplish these goals; and her utilization of "teachable moments" in the prekindergarten environment, whether they be planned or spontaneous. The observer therefore relates his data to the planned intent of the teacher as well as to the artistic, creative, and scientific basic processes utilized to bring about her objectives. The observation of the learner will yield significant data regarding teaching effectiveness in relation to behavioral objectives.

Preparation

It is evident that much planning has gone into the development of these lessons. Special materials, books, and/or equipment have been brought to class for use in the activities. Furthermore, the lessons appear to be prepared in terms of professional feedback.

Implicit in this category is the assumption that the teacher's lessons are prepared on the basis of information which has been transmitted back to her about her effect upon the children. This involves the use of prior assessment in her planning. The availability and use of a wide variety of materials and imaginative situations conducive to diverse pupil learning is also evident.

Knowledge of Learning Principles

The teacher's behavior, language, and repertoire reflect a knowledge of children's learning behavior. She bases her interaction with the pupils on an understanding of child development. The attention of the youngsters is sustained, though attention spans are not overworked. Appropriate learning materials are employed; the children assume active roles, and are given opportunities for affective, cognitive, intellectual, and psychomotor stimulation. Lessons are paced well; learning is reinforced, and multisensory approaches are used.

With this teacher, the children are learning by doing. Her understanding of child development and her concern for the developmental makeup of the youngters guides her performance. She knows the pupils' interests, and draws upon their experiences. Her efforts result in the stimulation of thinking, retention of knowledge, the development of intellectual skills, positive attitudes, and appreciations for the cultures of the home and the school, and also in the evolution of manipulative and physical skills. She creates situations of disequilibrium and discovery to stimulate cognitive growth.

Motivation

The teacher arouses the interest of the students by utilizing special techinques or combinations of methods. Through these, she stimulates individual youngsters as well as subgroups or the entire class. The motivation is periodically reinforced.

This teacher generates considerable interest among individual pupils and/or groups of pupils through the use of appropriate, challenging, imaginative, and exciting materials and techniques. She creates situations of disequilibrium and discovery to stimulate cognitive growth.

Individualization of Instruction

The teacher has a knowledge of the abilities, interests, and problems of the individual children. Individualization is based upon diagnostic evaluation. Grouping is flexible. Individual record cards are kept and used.

The teacher's knowledge of the organismic (mental, emotional, social, physical, etc.) backgrounds of the youngsters fosters and conditions the individualization of her instruction. Group situations appear to be flexible, and individuality of the youngsters is acknowledged even in these group situations. Effort is made to enhance individual self-concepts.

APPENDIX D-6

Evaluation of Prekindergarten

Data Gathering Device

Directions: Assign a numeral to each teacher on the basis of your classroom observation using a 1 to 5 scale, with 1 the highest, and 5 the lowest score. A 1 score indicates superior performance as demonstrated by the best teachers you have ever observed; a 3 score, average performance; and a 5 score inferior performance as demonstrated by the poorest teaching you have ever observed. This form is merely a record form for your own information. You may use it, along with other recordings of information of your own, for the eventual completion of our paired comparisons rating instrument.

The information written on these sheets, along with the numerical designations will not be used in the final processing of data, but we would appreciate your returning all this material to the State Education Department. Though only paired comparisons data will be processed, this information will assist us in the derivation of future rating systems. It will assist you as you make comparisons between teachers observed.

APPENDIX D-7

Evaluation of Prekindergarten
Data Gathering Device

School District:

Rater: Date:

Name of Teacher	Clarity of Purpose	Prepa-ration	Moti-vation	Knowledge of Learning Principles	Individualization of Instruction
Mrs. Grant					

Comments:

School District:

Rater: Date:

Name of Teacher	Clarity of Purpose	Prepa-ration	Moti-vation	Knowledge of Learning Principles	Individualization of Instruction
Mrs. Townsend					

Comments:

APPENDIX D-8

Evaluative Study of Prekindergarten Programs for Educationally Disadvantaged Children

Teacher Observations 1967

Important in the evaluation of preschool programs for the disadvantaged is an assessment of the behaviors and methods of the teachers conducting the classes. It is the intent of this study to ascertain what relationship, if any, exists between teacher quality as judged by knowledgeable observers and the outcome of the prekindergarten programs on immediate and long-range or longitudinal measures.

Identifying teacher quality is best done by a group of observers and by pooling their observations over a period of time in order to eliminate the biases of individual visitors and to minimize the effect on final standings of the "not-so-good" day which is the lot of all of us.

This year the observers are being asked to spend 1 day in each of the districts, dividing their time equally among the several teachers there and preparing a running description of each teacher's classroom behavior. In the one district where there is a language specialist in addition to a head teacher in each classroom, the observation should cover both persons.

Of course, not all teacher behaviors can be observed in one period. However, these are the types of behavior that one would be expected to see and record:

1. Teacher interaction with pupils, in groups and individually
2. Teacher interaction with aides and assistants
3. Evidence of planning
4. Techniques of classroom control
5. Physical organization of the classroom
6. Use of materials
7. The preparation of special materials for a given purpose
8. Sensitivity in terms of feedback
9. Awareness of children's developmental status.

Single page forms are provided for recording each observation; continuation pages included in the observer's packet may be used as needed. The descriptions should be succinct but sufficiently long to provide a picture of the teacher's classroom behavior during the observer's visit. The description should cite specific actions and should be factual and objective, without qualitative comments.

The final step in the observations will be a ranking of all teachers observed. A special sheet is provided for this purpose. It is suggested, however, that the ranking be developed as one proceeds; that is, that the first two teachers be compared, the third placed in relative position to these, the fourth added in turn, and so on until eventually a list of the 19 teachers is developed ranging from the most outstanding to the least competent. For this purpose, there is a double-paged worksheet with a series of 17 sets of rankings for the second, third, and fourth observations and so on.

Although observers will be visiting classrooms in pairs, it is important that they record their observations individually and make their rankings without discussion.

The 19 Teacher Observations and the Ranking of Teachers Observed 1967 should be returned to Dr. Di Lorenzo, Room 475, when completed.

APPENDIX D-10

EVALUATIVE STUDY OF PREKINDERGARTEN PROGRAMS FOR EDUCATIONALLY DISADVANTAGED CHILDREN

Record of Teacher Observation 1967

Teacher:______________________ Observer:______________________

School:______________________ Date:______________________

District:______________________ Time: Start:__________ End:__________

Number of Children Present: Boys:__________ Girls:__________

Supporting Staff:______________________

APPENDIX D-11

Evaluative Study of Prekindergarten Programs for Educationally Disadvantaged Children

Classroom Observations 1968

The observation of the several classrooms in the prekindergarten study by a number of persons has a twofold purpose: First, to obtain material for a composite description of the prekindergarten program conducted by each teacher and, second, to obtain a comparative evaluation of the teachers that some analysis may be made of the relation between teacher quality and program outcomes. For these two purposes, there are two forms to be used by each observer, a Classroom Observation Schedule and a Teacher Ranking List.

Directions for completion of the Observation Schedule are found on the form itself. The sections on "Daily Program" and "Equipment and Materials," page 1, should be checked during the observation. The following items on "Teacher Practices" and the "General Comment" section should be completed immediately afterwards. In anticipation of the latter section, the observer may find it helpful to make notes during his visit.

The Teacher Ranking List is to be filled out when all observations are completed. However, the ranking should be developed as one proceeds so that the first two teachers are compared after the first two visits, the third is placed in relative position to these when visited, the fourth is added in turn, and so on until eventually the observer has a list of the 16 teachers ordered from the most outstanding (No. 1) to the least competent (No. 16). A two-page worksheet is provided to facilitate this ranking.

If observers visit classrooms in pairs, they should complete their observation schedules individually and make their rankings without discussion.

The completed Observation Schedules and the Teacher Ranking List are to returned to Dr. Louis T. Di Lorenzo, Room 475.

APPENDIX D-12

EVALUATIVE STUDY OF PREKINDERGARTEN PROGRAMS FOR EDUCATIONALLY DISADVANTAGED CHILDREN

CLASSROOM OBSERVATION SCHEDULE 1968

Teacher: ____________________ Observer: ____________________

District: ____________________ Date: ________ Time Start: ______ Time Finish: ______

No. of Children: ____________________ Supporting Staff: ____________________

DAILY PROGRAM

Listed below are a number of activities that may be included in the daily program of a prekindergarten class. Indicate by number the sequence of activities in the session observed and the amount of time spent on each. Add activities not listed in spaces provided.

Order	Activity	Minutes	Order	Activity	Minutes	Order	Activity	Minutes
____	Free play	____	____	Singing	____	____	____	____
____	Roll taking	____	____	Dancing	____	____	____	____
____	Date & weather check	____	____	Library time	____	____	____	____
____	Group discussion	____	____	Number work	____	____	____	____
____	Story time	____	____	Language exercises	____	____	____	____
____	Toileting	____	____	Hand crafts	____	____	____	____
____	Snack	____	____	Lunch	____	____	____	____
____	Rest period	____	____	Listening to music	____	____	____	____

EQUIPMENT AND MATERIALS

Listed below are materials and equipment that may be found in a prekindergarten classroom. Check those seen in this classroom (x) and double check those used during the observation period (xx). Add items not listed in the spaces provided.

____ Hollow blocks
____ Unit blocks
____ Books
____ Record player
____ Paints
____ Crayons
____ Play dough
____ Clay
____ Scissors
____ Housekeeping corner
____ Dress-up clothes
____ Readiness workbooks
____ Ditto materials
____ Pupil name cards

____ Jungle gym, climbing ladder
____ Carpentry bench
____ Water play utensils
____ Rhythm band instruments
____ Puppets
____ Wheel toys
____ Film projector
____ Color charts
____ Picture puzzles
____ Lotto games
____ Flannel board
____ Blackboard

____ Growing plants
____ Live animals
____ Manipulative toys
____ Pupil records
____ ____________
____ ____________
____ ____________
____ ____________
____ ____________
____ ____________
____ ____________
____ ____________
____ ____________
____ ____________

APPENDIX D-13

Teacher: ______________________________ Observer: ______________________

TEACHER PRACTICES

Listed below are series of descriptions of six aspects of teacher bahavior. Under each category, check that description which best fits the practice of the teacher in the class observed.

1. Classroom Organization

☐ a. The teacher plans most activities for the group as a whole. During free play, she singles out individual children for special attention.

☐ b. The teacher works with individual children, small subgroups, and the entire group, shifting the organizational pattern for different activities and according to the needs of the children.

☐ c. The teacher plans the program for the group as a whole. At any given time during the day, all children are engaged in the same activity.

2. Use of Supporting Staff

☐ a. The teacher aide works with small groups and individuals; she may join in whole-class activities as a participant.

☐ b. The teacher aide performs housekeeping functions and assists in maintaining discipline.

☐ c. The teacher aide has responsibility for specific portions of the educational program (e.g., storytelling) in addition to working with small groups and individuals.

☐ d. The teacher aide performs housekeeping functions only.

☐ e. The teacher and the teacher aide function as a team, shifting responsibilities according to the needs of the children.

3. Discipline

☐ a. The teacher is constantly admonishing the children for misbehavior; she threatens and cajoles to get attention and cooperation, but her efforts are not fully successful.

☐ b. The teacher exercises control through reiteration of her expectations of "good" and "grown-up" boys and girls. Conforming behavior is rewarded by priviliges and priority in participation.

☐ c. The teacher maintains discipline through the pace of her program and personal enthusiasm, and by quickly reprimanding those who depart from the group pattern.

☐ d. The children follow routines, exercise responsibility for their own behavior, and cooperate readily with a minimum of teacher direction. The teacher reinforces desirable behavior and is alert to potential problems and areas of conflict.

☐ e. A laissez-faire attitude pervades the classroom; the teacher places few if any restrictions on the children's behavior.

APPENDIX D-14

Teacher: ____________________________ Observer: ______________________

TEACHER PRACTICES CONT'D

4. Structuring Program

☐ a. The children engage in a variety of activities without discernable objectives and unrelated to apparent needs.

☐ b. The teacher emphasizes diverse experiences for general enrichment. She relies primarily on children's responses to determine her teaching goals and strategies at a given time.

☐ c. The teacher emphasizes specific instructional goals. She focuses attention on the objective through defining the time period for the activity, using special materials, and prescribing the child's responses.

☐ d. The teacher gives equal attention to enrichment experiences and instructional activities for specific learnings.

5. Encouraging Language Development

☐ a. There is no special provision for language activities. Language development is incidental to a general enriched experience program.

☐ b. The teacher makes provision for language development through discussions, question and answer periods, and planned exposure to new concepts through books, pictures, and other special materials.

☐ c. The teacher gives the children controlled practice in the use of selected terms and concepts in order to establish specified language patterns.

6. Reacting to Pupil Needs

☐ a. In planning and carrying out her program, the teacher fails to take account of the developmental status of the children and their particular needs.

☐ b. Classroom activities are appropriate to the age range and developmental status of the children, but the teacher is insensitive to the children's responses so that teaching opportunities are lost.

☐ c. The teacher is sensitive to the needs and reactions of the children and modifies her behavior accordingly in both large group situations and individual encounters. The teacher is flexible; she has a capacity for listening and does not domineer.

APPENDIX D-15

Teacher: ______________________ Observer: ______________________

OBSERVER COMMENT

Describe the distinguishing characteristics of this prekindergarten program as observed during your visit. While this discription may be thought of as your overall reaction to the program, it should include examples of the specific activities or incidents on which your generalizing is based.

APPENDIX D-16

EVALUATIVE STUDY OF PREKINDERGARTEN PROGRAMS FOR EDUCATIONALLY DISADVANTAGED CHILDREN

Teacher Ranking List

Observer: ______________________________

Rank	Teacher
1	______________________________
2	______________________________
3	______________________________
4	______________________________
5	______________________________
6	______________________________
7	______________________________
8	______________________________
9	______________________________
10	______________________________
11	______________________________
12	______________________________
13	______________________________
14	______________________________
15	______________________________
16	______________________________

APPENDIX E-1
Warner's Scale of Occupations*

CATEGORY 1

- Architects
- Certified Public Accountants
- Chemists, etc. (with postgraduate training)
- Dentists
- Doctors
- Engineers
- Executives, T.V.
- High School Superintendents
- Judges
- Lawyers
- Managers (regional and divisional--large financial & industrial bus.)
- Ministers (graduates of divinity)
- Teachers, college
- Veterinarians

CATEGORY 2

- Accountants
- Administrative Assistants (college graduate)
- Art Directors
- Assistants to Executives, etc.
- Chiropodists
- Chiropractors
- Consultants, institutional
- Counselors, high-school guidance
- Executive
- Executives, steamship
- Insurance Brokers
- Librarians (graduate)
- Managers--large businesses, plant
- Media Directors, associate
- Ministers (some training)
- Newspaper Editors
- Nurses (trained)
- Office Department Managers--large business
- Pharmacists
- Postmasters
- Salesmen--real estate and insurance
- Systems Development
- Teachers
- Undertakers

CATEGORY 3

- Advertising Copywriters
- Analysts; credit, economic, hotel operations
- Auto Salesmen
- Bank Cashiers
- Bank Clerks
- Banking, loan department
- Contractors
- Engineers, electronics (nondegree), junior
- Financial Services Representatives
- Justices of the Peace
- Librarians (not graduate)
- Managers, electronics
- Ministers (no training)
- Optometrists
- Public Relations
- Retailers (college graduates)
- Salesmen (college graduates)
- Sales Representatives
- Secretaries--to executives
- Social workers
- Supervisors; department store, railroad, telephone
- Travel Agents
- Undertakers' Assistants
- All Minor Business Officials

CATEGORY 4

- Analysts, account (trainee)
- Bookkeepers
- Builders, self-employed
- Building Superintendents
- Captains--penitentiary
- Computer Operators
- Draftsmen
- Dry-Cleaners
- Electricians, master
- Foremen--factory, highway
- Fur Dressers
- Mail Clerks--rural
- Managers, alterations (dept. store)
- Managers; steakhouse, shoestore
- Methods Engineers--2-year trade school
- Musicians, self-employed
- Owners--electrical, plumbing, carpentry bus.; bakery, fish market, grocery, sporting goods, stationery, taxi company, etc.
- Photographers
- Railroad Conductors, Engineers, Ticket Agents
- Sales people--dry goods store
- School Counselors
- Sheriffs
- Station Agents--railroad, airport
- Stenographers
- Technicians, dental, electronics, radar-missles
- Watchmakers

*Warner's Rating Scale with additions

APPENDIX E-2

CATEGORY 5

- Auto Repair Workers
- Bakers
- Barbers
- Beauty Operators
- Bookbinders
- Butchers' Apprentices
- Cabinet Makers
- Carpenters
- Caterers, not self-employed
- Clerks--grocery, drug, dime store
- Cooks--restaurant
- Detectives
- Dress cutters
- Electricians' Apprentices
- Firemen
- Floor Waxers, self-employed
- Lathe Operators
- Linemen--telephone, telegraph
- Machinists
- Masons
- Mechanics--aircraft, bowling alley, powerhouse maintenance, sheet metal
- Medium-skilled Workers
- Motormen
- Painters
- Plasterers
- Plumbers
- Policemen
- Practical Nurses
- Printers
- Repairmen--radio, T.V.
- Salesmen--hardware, stationery, shoe, boat covers, sport shop
- Seamstresses
- Self-employed--construction, delivery service
- Secretaries
- Sheet Metal Workers
- Shoemakers
- Technicians--air, lab, electronics
- Telephone Operators
- Testers, electronics
- Tilers
- Timekeepers
- Tinsmiths
- Transmission Specialists

CATEGORY 6

- Assembly Line Workers--auto and other
- Attendants--gas stations, hospitals
- Auto Body Repairmen--painting
- Baggage Men
- Bank Messengers
- Body and Fender Workers
- Car Deliverers
- Car Inspectors, railroad
- Carpenters' Assistants
- Chauffeurs
- Chemical Plant Workers
- Clerks--duplicating, fleet-service, general, receiving room. mail and shipping, stock, order, supply, postal
- Coffee Roasters
- Construction, iron workers
- Crane Followers
- Delivery Men
- Drivers, motor vehicles
- Electrical Workers
- Exterminator's Helpers
- Factory Workers
- Gardeners
- Gear Grinders
- Golf Course Inn Keepers
- Green Keepers
- Guards
- Jailers
- Landscapers
- Lathers, metallic
- Lift-drivers
- Machine Operators
- Mail Handlers
- Mailmen (letter carriers)
- Mechanics--gas station, building
- Metal Workers--cutters, sanders
- Milkmen
- Moulders
- Night Policemen
- Night Watchmen
- Operators, highway maintenance equipment
- Porters, hospital
- Pressers--cleaning establishment
- Salesmen, route
- Semi-skilled Workers
- Shipping Room Workers
- Shop Workers
- Tank Repairmen
- Taxi Drivers
- Draw Bridge Operators
- Truck Drivers
- Waiters
- Waitresses
- Welders
- Military Servicemen

APPENDIX E-3

CATEGORY 7

- Caddies
- Car Washers
- Construction workers
- Custodians
- Dairy Laborers
- Dishwashers
- Helpers
- Heavy Laborers
- House-cleaning Servicemen
- Institutional Aides
- Janitors
- Machine Cleaners
- Maintenance Man
- Migrant Workers
- Miners
- Movers
- Newsboys
- Odd-job Men
- Orderlies--hospital
- Porters, general
- Scrubwomen
- Window Washers

4/17/67

APPENDIX F

PROJECT BUDGET AND SOURCES OF FUNDING

	FY 1966	FY 1967	FY 1968	FY 1969	TOTAL		
PROGRAM BUDGETS:							
Cortland		$ 40,056	$ 42,974		$ 83,030		
Greenburgh	$ 43,800	39,270	47,269		130,339		
Hempstead	58,700	51,705	48,859		159,264		
Long Beach	20,500	23,738	31,160		75,398		
Mount Vernon	38,200	47,077	28,870		114,147		
Schenectady	28,100	25,979	33,122		87,201		
Spring Valley	18,200	23,166	30,001		71,367		
Yonkers	35,000	36,307	38,874		110,181		
Totals	$242,500	$287,298	$301,129			$840,927	
RESEARCH EXPENDITURES	$ 119,778	$ 92,983	$ 80,349	$ 55,534		$ 348,644	
TOTAL PROJECT EXPENDITURES							$1,189,571
FUNDING:							
Federal	$ 79,778	$ 52,983	$ 40,349	$ 15,534	$ 188,644		
State	131,373	129,902	226,250	207,738	695,263		
Local	84,794	131,308	44,117	45,445	305,664		
Totals	$295,945	$314,193	$310,716	$268,717			$1,189,571

APPENDIX G-1

Matrix of Significant Differences Between Mean I.Q. Changes on the Stanford-Binet Intelligence Scale of Prekindergarten Children Leveled by Treatment, Race, Socioeconomic Status, and Sex

WAVE I 1965-66

GROUP	N	MEAN CHANGE	E NW D M	E W D M	E NW D F	E W D F	C NW D M	C W D M	C NW D F	C W D F	E NW N M	E W N M	E NW N F	E W N F	C NW N M	C W N M	C NW N F	C W N F
E NW D M	76	-0.77							**		*							
E W D M	47	1.90				**		*	*		*					*		
E NW D F	83	-1.99		**							*							
E W D F	39	-2.00									*							
C NW D M	60	-1.36									*							
C W D M	49	-3.47									**							
C NW D F	61	-3.80									**							
C W D F	47	-1.16									*							
E NW N M	10	-9.60																
E W N M	15	4.40							**		*					**		
E NW N F	6	1.00									*							
E W N F	22	-0.78									*							
C NW N M	4	2.75																
C W N M	19	-5.16																
C NW N F	5	-3.00																
C W N F	26	2.31		**	**	**		*	*		*					*		

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental	W = White	D = Disadvantaged	M = Male
C = Control	NW = Nonwhite	N = Nondisadvantaged	F = Female

APPENDIX G-2

Matrix of Significant Differences Between Mean I.Q. Changes on the Stanford-Binet Intelligence Scale of Prekindergarten Children Leveled by Treatment, Race, Socioeconomic Status, and Sex

WAVE II 1966-67

GROUP	N	MEAN CHANGE	E NW D M	E W D M	E NW D F	E W D F	C NW D M	C W D M	C NW D F	C W D F	E NW N M	E W N M	E NW N F	E W N F	C NW N M	C W N M	C NW N F	C W N F
E NW D M	77	0.64					**								-		**	
E W D M	81	5.01	*		**		*	*	*	*					-		*	
E NW D F	90	2.15					*		**						-		*	
E W D F	74	8.85	*	**	*		*	*	*	*	*			*	-	*	*	*
C NW D M	47	-2.92													-			
C W D M	62	-0.15													-			
C NW D F	60	-0.87													-			
C W D F	46	-0.19													-			
E NW N M	10	2.90					*								-		*	
E W N M	37	8.84	*		*		*	*	*	*	**			*	-	**	*	**
E NW N F	11	2.27													-			
E W N F	24	1.87													-		**	
C NW N M	1	2.00	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-
C W N M	23	1.61													-		**	
C NW N F	6	-7.17													-			
C W N F	16	2.81					**								-		**	

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental
C = Control

W = White
NW = Nonwhite

D = Disadvantaged
N = Nondisadvantaged

M = Male
F = Female

APPENDIX G-3

Matrix of Significant Differences Between Mean I.Q. Changes on the Stanford-Binet Intelligence Scale of Prekindergarten Children Leveled by Treatment, Race, Socioeconomic Status, and Sex

WAVE III 1967-68

GROUP	N	MEAN CHANGE	E NW D M	E W D M	E NW D F	E W D F	C NW D M	C W D M	C NW D F	C W D F	E NW N M	E W N M	E NW N F	E W N F	C NW N M	C W N M	C NW N F	C W N F
E NW D M	71	1.82					*	**	*									
E W D M	81	5.55	**		**		*	*	*	*								*
E NW D F	61	1.25							*									
E W D F	70	4.30					*	*	*	*								*
C NW D M	46	-2.17																
C W D M	67	-1.86																
C NW D F	48	-3.38																
C W D F	55	-1.06																
E NW N M	4	-3.25																
E W N M	21	-0.09																
E NW N F	6	-2.00																
E W N F	13	6.08					**	**	*									
C NW N M	3	-9.00																
C W N M	12	-2.75																
C NW N F	3	-0.33																
C W N F	10	-3.10																

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental	W = White	D = Disadvantaged	M = Male
C = Control	NW = Nonwhite	N = Nondisadvantaged	F = Female

APPENDIX G-4

Table 30

Stanford-Binet IQ Changes
of Disadvantaged Prekindergarten Children
by Treatment, Race, and Sex

Wave	Score	Experimental				Control			
		1 Non-Wh Male	2 White Male	3 Non-Wh Female	4 White Female	5 Non-Wh Male	6 White Male	7 Non-Wh Female	8 White Female
I 1965-66	N	76	47	83	39	60	49	61	47
	Pretest X	87.35	94.53	90.16	95.46	85.13	93.55	90.41	95.63
	Posttest $\bar{X}$	86.58	96.43	88.17	93.46	83.77	90.08	86.61	94.47
	Change	-0.77	1.90	-1.99	-2.00	-1.36	-3.47*	-3.80*	-1.16
	Difference	2.67		0.01		2.11		2.64	
	Difference 1-5	0.59							
	Difference 2-6		5.37*						
	Difference 3-7			1.81					
	Difference 4-8				0.84				
II 1966-67	N	77	81	90	74	47	62	60	46
	Pretest $\bar{X}$	89.62	93.98	91.32	96.00	85.49	94.34	88.57	95.17
	Posttest $\bar{X}$	90.26	98.99	93.47	104.85	82.57	94.19	87.70	94.98
	Change	0.64	5.01*	2.15*	8.85*	-2.92**	-0.15	-0.87	-0.19
	Difference	4.37**		6.70*		2.77		0.68	
	Difference 1-5	3.56**							
	Difference 2-6		5.16*						
	Difference 3-7			3.02**					
	Difference 4-8				9.04*				
III 1967-68	N	71	81	61	70	46	67	48	55
	Pretest $\bar{X}$	87.14	91.64	89.98	96.80	88.65	93.43	90.23	94.91
	Posttest $\bar{X}$	88.96	97.19	91.23	101.10	86.48	91.57	86.85	93.85
	Change	1.82	5.55*	1.25	4.30*	-2.17	-1.86	-3.38*	-1.06
	Difference	3.73**		3.05		0.31		2.32	
	Difference 1-5	3.99*							
	Difference 2-6		7.41*						
	Difference 3-7			4.63*					
	Difference 4-8				5.36*				
TOTAL Wave I, II, & III	N	224	209	234	183	153	178	169	150
	Pretest $\bar{X}$	88.07	93.19	90.56	96.19	86.30	93.78	89.70	94.40
	Posttest $\bar{X}$	88.60	97.71	91.00	100.99	84.22	92.07	87.07	95.23
	Change	0.53	4.52	0.44	4.80*	-2.08*	-1.71*	-2.63*	-0.83
	Difference	3.99*		4.36*		0.37		1.80	
	Difference 1-5	2.61*							
	Difference 2-6		6.23*						
	Difference 3-7			3.07*					
	Difference 4-8				5.63*				

(*Significant at .05 level; **Significant at .1 level)

APPENDIX H-1

Matrix of Significant Differences between Mean Raw Score Changes on the Peabody Picture Vocabulary Test Prekindergarten Children Leveled by Treatment, Race, Socioeconomic Status, and Sex

WAVE I 1965-67

GROUP	N	MEAN CHANGE	E NW D M	E W D M	E NW D F	E W D F	C NW D M	C W D M	C NW D F	C W D F	E NW N M	E W N M	E NW N F	E W N F	C NW N M	C W N M	C NW N F	C W N F
E NW D M	78	14.58			**	*		**	*	*		*	*	*		**	*	*
E W D M	47	14.93			**	*		**	*	*		*	*	*		**	*	*
E NW D F	85	12.33							*				*	**			*	*
E W D F	39	11.00							**				*				*	
C NW D M	60	14.40				**			*	*		**	*	*			*	*
C W D M	49	12.04							*				*				*	**
C NW D F	60	8.80																
C W D F	45	9.95											**					
E NW N M	10	10.40																
E W N M	14	10.36																
E NW N F	6	6.00																
E W N F	22	9.40																
C NW N M	4	19.25	*	*	*	*	*	*	*	*	*	*	*	*		*	*	*
C W N M	19	10.79											*					
C NW N F	6	6.16																
C W N F	26	9.27																

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental	W = White	D = Disadvantaged	M = Male
C = Control	NW = Nonwhite	N = Nondisadvantaged	F = Female

APPENDIX H-2

Matrix of Significant Differences between Mean Raw Score Changes on the Peabody Picture Vocabulary Test Prekindergarten Children Leveled by Treatment, Race, Socioeconomic Status, and Sex

WAVE II 1966-67

GROUP	N	MEAN CHANGE	E NW D M	E W D M	E NW D F	E W D F	C NW D M	C W D M	C NW D F	C W D F	E NW N M	E W N M	E NW N F	E W N F	C NW N M	C W N M	C NW N F	C W N F
E NW D M	76	12.21					**			*		*		*	-	*		
E W D M	80	10.20													-			
E NW D F	90	11.09										*			-	**		
E W D F	74	12.02								*		*		**	-	*		
C NW D M	47	9.32													-			
C W D M	62	11.12										*			-	**		
C NW D F	58	10.18													-			
C W D F	46	8.63													-			
E NW N M	9	10.67													-			
E W N M	37	7.84													-			
E NW N F	11	12.36													-			
E W N F	24	8.63													-			
C NW N M	1	19.00	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-
C W N M	23	7.74													-			
C NW N F	6	13.00					**			*		*		*	-	*		**
C W N F	16	9.00													-			

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental
C = Control

W = White
NW = Nonwhite

D = Disadvantaged
N = Nondisadvantaged

M = Male
F = Female

APPENDIX H-3

Matrix of Significant Differences Between Mean Raw Score Changes on the Peabody Picture Vocabulary Test Prekindergarten Children Leveled by Treatment, Race, Socioeconomic Status, and Sex

WAVE III 1967-68

GROUP	N	MEAN CHANGE	E NW D M	E W D M	E NW D F	E W D F	C NW D M	C W D M	C NW D F	C W D F	E NW N M	E W N M	E NW N F	E W N F	C NW N M	C W N M	C NW N F	C W N F
E NW D M	71	18.29					*	*	*	*		*		*				
E W D M	81	18.50					*	*	*	*		*		*		**		
E NW D F	61	16.36								*		**		*				
E W D F	70	16.19								*		**		*				
C NW D M	46	14.95																
C W D M	67	14.02																
C NW D F	48	14.90																
C W D F	55	11.49																
E NW N M	4	12.50																
E W N M	21	12.14																
E NW N F	6	19.67						**				*		*		*		
E W N F	13	10.77																
C NW N M	3	24.67			**	**	*	*	*	*	**	*		*		*		**
C W N M	12	13.92																
C NW N F	3	23.67	*	*	*	*	*	*	*	*	*	*		*		*		*
C W N F	10	15.30																

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental	W = White	D = Disadvantaged	M = Male
C = Control	NW = Nonwhite	N = Nondisadvantaged	F = Female

APPENDIX H-4

Table 31

PPVT Raw Score Changes of Disadvantaged Prekindergarten Children by Treatment and Race

Wave	Score	Experimental		Control	
		1 Non-Wh	2 White	3 Non-Wh	4 White
I 1965-66	N	163	86	120	94
	Pretest X	27.58	35.92	27.40	33.46
	Posttest X	40.99	49.07	39.00	44.50
	Change	13.41	13.15	11.60	11.04
	Difference	0.26		0.56	
	Difference 1-3	1.81**			
	Difference 2-4		2.11**		
II 1966-67	N	166	154	105	108
	Pretest X	28.81	36.34	26.71	36.00
	Posttest X	40.41	47.41	36.50	46.06
	Change	11.60	11.07	9.79	10.06
	Difference	0.53		0.27	
	Difference 1-3	1.81			
	Differance 2-4		1.01		
III 1967-68	N	132	151	94	122
	Pretest X	23.85	30.58	24.62	32.17
	Posttest X	41.24	48.01	39.54	45.05
	Change	17.39	17.43	14.92	12.88
	Difference	0.04		2.04**	
	Difference 1-3	2.47*			
	Difference 2-4		4.55*		
TOTAL Wave I, II, & III	N	461	391	319	324
	Pretest X	26.95	34.02	26.35	33.82
	Posttest X	40.85	48.01	38.34	45.23
	Change	13.90	13.99	11.99	11.41
	Difference	0.09		0.58	
	Difference 1-3	1.91*			
	Difference 2-4		2.58*		

(*Significant at .05 level; **Significant at .1 level)

APPENDIX H-5

Table 32

PPVT Raw Score Changes
of Disadvantaged Prekindergarten Children
by Treatment, Race, and Sex

Wave	Score	Experimental				Control			
		1	2	3	4	5	6	7	8
		Non-Wh Male	White Male	Non-Wh Female	White Female	Non-Wh Male	White Male	Non-Wh Female	White Female
I	N	78	47	85	39	60	49	60	45
	Pretest $\bar{X}$	29.69	36.60	28.40	35.10	25.93	32.98	28.87	33.98
	Posttest $\bar{X}$	41.27	51.53	40.73	46.10	40.33	45.02	37.67	43.93
	Change	14.58	14.93	12.33	11.00	14.40	12.04	8.80	9.95
	Difference	0.35		1.33		2.36		1.15	
1965-66	Difference 1-5	0.18							
	Difference 2-6		2.89**						
	Difference 3-7			3.53*					
	Difference 4-8				1.05				
II	N	76	80	90	74	47	62	58	46
	Pretest $\bar{X}$	28.70	36.96	28.90	35.66	27.55	35.44	26.03	36.76
	Posttest $\bar{X}$	40.91	47.16	39.99	47.68	36.87	46.56	36.21	45.39
	Change	12.21	10.20	11.09	12.02	9.32	11.12	10.18	8.63
	Difference	2.01		0.93		1.80		1.55	
1966-67	Difference 1-5	2.89**							
	Difference 2-6		0.92						
	Difference 3-7			0.91					
	Difference 4-8				3.39*				
III	N	71	81	61	70	46	67	48	55
	Pretest $\bar{X}$	24.32	30.78	23.30	30.34	26.33	32.85	22.98	31.35
	Posttest $\bar{X}$	42.61	49.28	39.66	46.53	41.28	46.87	37.88	42.84
	Change	18.29	18.50	16.36	16.19	14.95	14.02	14.90	11.49
	Difference	0.21		0.17		0.93		3.41*	
1967-68	Difference 1-5	3.34*							
	Difference 2-6		4.48*						
	Difference 3-7			1.46					
	Difference 4-8				4.70*				
TOTAL	N	225	208	236	183	153	178	166	146
	Pretest $\bar{X}$	26.62	34.47	27.27	33.51	26.55	33.79	26.17	33.86
	Posttest $\bar{X}$	41.57	48.98	40.17	46.90	39.56	46.25	37.22	43.98
	Change	14.95	14.51	12.90	13.39	13.01	12.46	11.05	10.12
Wave I, II, & III		0.44		0.49		0.55		0.93	
	Difference 1-5	1.94*							
	Difference 2-6		2.05*						
	Difference 3-7			1.85*					
	Difference 4-8				3.27*				

(*Significant at .05 level; **Significant at .1 level)

APPENDIX I-1

Matrix of Significant Differences Between Adjusted Means on the Illinois Test of Psycholinguistic Abilities of Disadvantaged Prekindergarten Children Leveled by Treatment, Race, and Sex

WAVE I 1965-66

GROUP	N	ADJ. MEAN	E NW M	E W M	E NW F	E W F	C NW M	C W M	C NW F	C W F
E NW M	76	55.84								
E W M	47	64.20	* 8.36		* 8.17		* 11.60	* 11.63	* 11.18	* 7.51
E NW F	83	56.03								
E W F	37	64.40	* 8.56		* 8.37		* 11.80	* 11.83	* 11.38	* 7.71
C NW M	60	52.60								
C W M	49	52.57								
C NW F	61	53.02								
C W F	46	56.69								

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental
C = Control
W = White
NW = Nonwhite
M = Male
F = Female

APPENDIX I-2

Matrix of Significant Differences Between Adjusted Means on the Illinois Test of Psycholinguistic Abilities of Disadvantaged Prekindergarten Children Leveled by Treatment, Race, and Sex

WAVE II 1966-67

GROUP	N	ADJ. MEAN	E NW M	E W M	E NW F	E W F	C NW M	C W M	C NW F	C W F
E NW M	75	60.66					*9.09		*6.09	
E W M	81	62.56			*4.05		*10.99		*7.99	
E NW F	87	58.51					*6.94		*3.94	
E W F	74	65.03	*4.37		*6.52		*13.46	*4.86	*10.46	
C NW M	46	51.57								
C W M	62	60.17					*8.60		*5.60	
C NW F	58	54.57								
C W F	46	63.41			*4.90		*11.84		*8.84	

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental
C = Control

W = White
NW = Nonwhite

M = Male
F = Female

APPENDIX L-3

Matrix of Significant Differences Between Adjusted Means on the Illinois Test of Psycholinguistic Abilities of Disadvantaged Prekindergarten Children Leveled by Treatment, Race, and Sex

WAVE III 1967-68

GROUP	N	ADJ. MEAN	E NW M	E W M	E NW F	E W F	C NW M	C W M	C NW F	C W F
E NW M	70	61.16								
E W M	81	66.23	* 5.07		* 6.68		* 5.47	* 3.97	* 7.76	* 4.61
E NW F	61	59.55								
E W F	69	68.55	* 7.39		* 9.00		* 7.79	* 6.29	* 10.08	* 6.93
C NW M	46	60.76								
C W M	67	62.26							* 3.79	
C NW F	48	58.47								
C W F	54	61.62								

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental
C = Control

W = White
NW = Nonwhite

M = Male
F = Female

APPENDIX L-4

Table 33

Comparison of Adjusted Means on the Illinois Test of Psycholinguistic Abilities of Disadvantaged Prekindergarten Children by Treatment, Race, and Sex

Wave	Score	Experimental				Control			
		1 Non-Wh Male	2 White Male	3 Non-Wh Female	4 White Female	5 Non-Wh Male	6 White Male	7 Non-Wh Female	8 White Female
I 1965-66	N	76	47	83	37	60	49	61	46
	Adjusted Mean	55.84	64.20	56.03	64.40	52.60	52.57	53.02	56.69
	Difference	8.36*		8.37*		0.03		3.67	
	Difference 1-5	3.24							
	Difference 2-6		11.63*						
	Difference 3-7			3.01					
	Difference 4-8				7.71*				
II 1966-67	N	75	81	87	74	46	62	58	46
	Adjusted Mean	60.66	62.56	58.51	65.03	51.57	60.17	54.57	63.41
	Difference	1.90		6.52*		8.60*		8.84*	
	Difference 1-5	9.09*							
	Difference 2-6		2.39						
	Difference 3-7			3.94**					
	Difference 4-8				1.62				
III 1967-68	N	70	81	61	69	46	67	48	54
	Adjusted Mean	61.16	66.23	59.55	68.55	60.96	62.26	58.47	61.62
	Difference	5.07*		9.00*		1.30		3.15	
	Difference 1-5	0.20							
	Difference 2-6		3.97*						
	Difference 3-7			1.08					
	Difference 4-8				6.93*				
TOTAL Wave I, II, & III	N	221	209	231	180	152	178	167	146
	Adjusted Mean	58.72	63.93	57.34	65.67	54.25	58.33	54.54	59.99
	Difference	5.21*		8.33*		4.08*		5.45*	
	Difference 1-5	4.47*							
	Difference 2-6		5.60*						
	Difference 3-7			2.80*					
	Difference 4-8				5.68*				

(*Significant at .05 level; **Significant at .1 level)

APPENDIX J-1

Metropolitan Readiness Tests
Matrix of Significant Differences Between Adjusted Means[1]
for Disadvantaged Children Leveled by Treatment, Race, and Sex

WAVE I

GROUP	N	ADJ. MEAN	E NW M	E W M	E NW F	E W F	C NW M	C W M	C NW F	C W F
E NW M	63	41.65								
E W M	38	44.50								
E NW F	66	44.41					** 4.02		** 3.94	
E W F	28	48.86	* 7.21				* 8.47	* 8.50	* 8.39	
C NW M	49	40.39								
C W M	31	40.36								
C NW F	50	40.47								
C W F	31	45.34					** 4.95		** 4.87	

*** = A difference at the .05 level of significance in favor of the group listed along the ordinate**

**** = A difference at the .1 level of significance in favor of the group listed along the ordinate**

Code

E = Experimental **W = White** **M = Male**
C = Control **NW = Nonwhite** **F = Female**

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[1] **Covariates: S-B and ppvt Pretest Scores**

APPENDIX J-2

Metropolitan Readiness Tests
Matrix of Significant Differences Between Adjusted Means[1]
for Disadvantaged Children Leveled by Treatment, Race, and Sex

WAVE II.

GROUP	N	ADJ. MEAN	E NW M	E W M	E NW F	E W F	C NW M	C W M	C NW F	C W F
E NW M	69	48.96					* 6.93			** 4.90
E W M	61	45.57								
E NW F	76	46.31					** 4.28			
E W F	65	50.77		* 5.20	* 4.46		* 8.74	** 4.16	* 4.99	* 6.71
C NW M	43	42.03								
C W M	51	46.61					** 4.58			
C NW F	49	45.78								
C W F	40	44.06								

* = A difference at the .05 level of significance in favor of the group listed along the ordinate

** = A difference at the .1 level of significance in favor of the group listed along the ordinate

Code

E = Experimental
C = Control
W = White
NW = Nonwhite
M = Male
F = Female

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[1] Covariates: S-B and PPVT Pretest Scores

APPENDIX J-3

Table 34

Comparison of Adjusted Means on the Metropolitan Readiness Tests of Disadvantaged Prekindergarten Children by Treatment, Race, and Sex

Wave	Score	Experimental				Control			
		1	2	3	4	5	6	7	8
		Nonwh Male	White Male	Nonwh Female	White Female	Nonwh Male	White Male	Nonwh Female	White Female
	N	63	38	66	28	49	31	50	31
	Adjusted Mean	41.65	44.50	44.41	48.86	40.39	40.36	40.47	45.34
I	Difference	2.85		4.45		0.03		4.87**	
1965-66	Difference 1-5	1.26							
	Difference 2-6		4.14						
	Difference 3-7			3.94**					
	Difference 4-8				3.52				
	N	69	61	76	65	43	51	49	40
	Adjusted Mean	48.96	45.57	46.31	50.77	42.03	46.61	45.78	44.06
II	Difference	3.39		4.46*		4.58**		1.72	
1966-67	Difference 1-5	6.93*							
	Difference 2-6		1.04						
	Difference 3-7			0.53					
	Difference 4-8				6.71*				
	N	63	71	52	58	42	52	40	47
	Adjusted Mean	50.13	52.70	55.68	52.37	48.54	48.04	53.18	48.79
III	Difference	2.57		3.31		0.50		4.39	
1967-68	Difference 1-5	1.59							
	Difference 2-6		4.66**						
	Difference 3-7			2.50					
	Difference 4-8				3.58				
	N	195	170	194	151	134	134	139	118
TOTAL	Adjusted Mean	46.84	48.55	47.88	51.06	43.45	46.04	45.72	46.59
Wave I, II, & III	Difference	1.71		3.18*		2.59		0.87	
	Difference 1-5	3.39*							
	Difference 2-6		2.51						
	Difference 3-7			2.16					
	Difference 4-8				4.47*				

(*Significant at .05 level; **Significant at .1 level)

APPENDIX K

Table 35

Comparison Within Districts of Adjusted Means on the Metropolitan Achievement Tests-Primary I Battery for Disadvantaged Experimental and Control Children

[Districts arranged in order from traditional nursery to highly cognitive-structured in approach]

Wave	Score	GREENBURGH		LONG BEACH		SP. VALLEY		HEMPSTEAD		YONKERS		MT. VERNON		SCHENECTADY		CORTLAND	
		Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.	Exp.	Con.
II	N	24	10	20	22	21	17	42	14	43	33	34	18	29	26	33	13
	Adjusted $\bar{X}$	101.73	112.25	100.83	100.56	108.66	86.97	122.12	131.28	100.54	94.56	121.57	109.61	102.79	94.22	123.67	129.14
1966-67	Diff.	10.52		0.27		21.69*		9.16		5.98		11.86		8.57		5.47	

Table 36

Comparison of Adjusted Means on the Metropolitan Achievement Tests-Primary I Battery of Disadvantaged Prekindergarten Children by Treatment, Race, and Sex

Table 37

Comparison of Adjusted Means on the Metropolitan Achievement Tests by Treatment and Race

Wave	Score	Experimental				Control				Experimental		Control	
		1	2	3	4	5	6	7	8	1	2	3	4
		Nonwh Male	White Male	Nonwh Female	White Female	Nonwh Male	White Male	Nonwh Female	White Female	Nonwh	White	Nonwh	White
II	N	63	53	73	57	35	40	43	35	136	110	78	75
	Adjusted Mean	101.68	112.82	111.98	120.00	90.80	107.97	106.42	108.23	107.24	116.45	99.54	108.03
	Difference	11.14*		8.02		17.17*		1.81		9.21*		8.49	
1966-67	Diff. 1-5	10.88**								7.70**			
	Diff. 2-6		4.85								8.42**		
	Diff. 3-7			5.46									
	Diff. 4-8				11.77*								

APPENDIX L-1

LEARNER SELF-CONCEPT TEST

ADMINISTRATION

The Learner Self-Concept Test is composed of 12 separate items. Each item includes: (a) one or two drawings representing a particular classroom situation, and (b) a series of two questions to be used in eliciting responses to the drawings.

The items are arranged in two groups, six items per group. The order of presentation of each group is alternated for each successive test administration. The order of presentation is indicated on the record sheet by circling either "A First" or "B First" under "Ordering."

There are four separate sets of drawings, a set to be used with each of the following groups of subjects: White Males, Nonwhite Males, White Females, and Nonwhite Females.

The general procedure for administration of each item is as follows:

1. Present the drawing(s) to the subject.
2. Point out to the subject the positive and negative characters depicted in the drawing(s) by using the statements listed under the section "STRUCTURE" found in the specific item instructions which follow.
3. Ask the question found after each structure.
    a. As a result of the first question, indicate the subject's choice of either positive or negative character identification of the record sheet with a "+" or "-." If a character other

than either the positive or negative character is chosen, indicate the specific choice on the record sheet.

b. Repeat the procedure for structure-Question 2.

c. Make comments on the record sheet pertinent to the suspected validity of the subject's responses.

4. The number of positive responses, number of negative responses, and total responses (number positive minus number negative) are obtained for each group. The group scores are then added to obtain total test scores.

APPENDIX L -3

LAP

TEACHER-LEARNER #1 1 plate

Positive - child on teacher's lap
Negative - child sitting alone on floor

STRUCUTRE-QUESTION 1

+ This (boy) (girl) is happy sitting on the teacher's lap. The teacher likes to have this (boy) (girl) sit on her lap.

- This (boy) (girl) is sad. (He) (She) would like to sit on the teacher's lap. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) is listening to the teacher tell a story.

- This (boy) (girl) doesn't want to listen to the teacher talking all the time. Which (boy) (girl) is like you?

CARDS

TEACHER-LEARNER #2 1 plate

Positive - child at table working with teacher
Negative - child at table not working with teacher

STRUCTURE-QUESTION 1

+ The teacher is helping this (boy) (girl) work with the cards.

- This (boy) (girl) is not being helped by the teacher. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) knows the names of the picture cards and is telling them to the teacher.

- This (boy) (girl) doesn't know the picture names. Which (boy) (girl) is most like you?

APPENDIX L-4

HUG

PEERS-LEARNER #1 2 plates

Positive - child hugging another child
Negative - child pushing another child away

STRUCTURE-QUESTION 1

+ This (boy) (girl) likes this other (boy) (girl) in the class. (He) (She) has (his) (her) arm around (him) (her.

- This (boy) (girl) doesn's like this other (boy) (girl) in the class. (He) (She) is pushing (him) (her) away. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) likes to play with the other (boy) (girl). Which (boy) (girl) is most like you?

- This (boy) (girl) doesn't like the other (boy) (girl) to bother (him) (her).

GAME

PEERS-LEARNER #2 1 plate

Positive - child joining in the circle game with other children
Negative - child alone on floor

STRUCTURE-QUESTION 1

+ This (boy) (girl) likes to play games with the other children in(his) (her) class.

- This (boy) (girl) does not like to play games with the others. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) thinks the game is fun. Which (boy) (girl) is most like you?

- This (boy) (girl) thinks that game is silly.

CUT

MATERIALS-LEARNER #1 1 plate

Positive - child at table working with group
Negative - child alone not working

STRUCTURE-QUESTION 1

+ This (boy) (girl) likes to work with paper, paste, and crayons.

- This (boy) (girl) does not like to work with the paper, paste, and crayons. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) is cutting a picture from the paper. Which (boy) (girl) is most like you?

- This (boy) (girl) doesn't like the crayons and scissors.

CLIMB

MATERIALS-LEARNER #2 1 plate

Positive - child climbing on jungle gym
Negative - child on floor

STRUCTURE-QUESTION 1

+ This (boy) (girl) likes to climb and play on the jungle gym.

- This (boy) (girl) doesn't like to climb on it. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) can climb very high. Which (boy) (girl) is most like you?

- This (boy) (girl) is afraid she will fall.

COMFORT

TEACHER-LEARNER #3 1 plate

Positive - child being comforted by teacher
Negative - child not being comforted by teacher

STRUCTURE-QUESTION 1

+ This (boy) (girl) is very sad. The teacher is trying to make (him) (her) feel better.

- This (boy) (girl) is sad too. The teacher isn't trying to make (him) (her) feel better. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This girl always tells the teacher why (he) (she) is crying. Which (boy) (girl) is most like you?

- This (boy) (girl) never tells the teacher what made (him) (her) cry.

JACKET

TEACHER-LEARNER #4 2 plates

Positive - child being assisted with jacket by teacher
Negative - child not being assisted by teacher

STRUCTURE-QUESTION 1

+ This teacher is showing this (boy) (girl) how to button (his) (her) jacket.

- This teacher won't show this (boy) (girl) how to button (his) (her) jacket. Which (boy) (girl) is like you?

STRUCTURE-QUESTION 2

+ The teacher helps this (boy) (girl) dress anytime.

- The teacher is too tired to help this (boy) (girl) dress. Which (boy) (girl) is like you?

SHARE

PEERS-LEARNER #3 2 plates

Positive - child sharing toy
Negative - child refusing to share toy

STRUCTURE-QUESTION 1

+ This (boy) (girl) is letting the other (boy) (girl) play with (his) (her) toy.

- This (boy) (girl) is not letting the other (boy) (girl) play with (his) (her) toy. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) likes her doll (car) more than she likes the other (boy)(girl).

- This (boy) (girl) likes the other (boy) (girl) more than she likes her doll (car). Which (boy) (girl) is like you?

TOYS

PEERS-LEARNER #4 4 plates (2 separate plates for boys; 2 for girls)

Positive - child playing with group
Negative - child playing alone

STRUCTURE-QUESTION 1

+ This (boy) (girl) likes to play with the other children in (his) (her) class.

- This (boy) (girl) wouls rather play alone. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) is showing the other girls how she plays with her doll.

- This (boy) (girl) doesn't want the others to see her playing with the doll. Which (boy) (girl) is most like you?

APPENDIX L-8

PICTURES

MATERIALS-LEARNER #3 — 1 plate

Positive - third child from left, happy, showing pictures
Negative - first child, unhappy, pictures torn

STRUCTURE-QUESTION 1

+ This (boy) (girl) has drawn a picture. (He) (She) is happy showing the pictures.

- This (boy) (girl) has drawn a picture. It isn't any good so (he) (she) ripped it. (He) (She) isn't happy showing the picture. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) doesn't want the children to see (his) (her) pictures. She doesn't color well.

- This (boy) (girl) makes nice pictures and wants everybody to see them. Which (boy) (girl) is like you?

BLOCKS

MATERIALS-LEARNER #4 — 2 plates

Positive - child successful in building with blocks
Negative - child unsuccessful in building with blocks

STRUCTURE-QUESTION 1

+ This (boy) (girl) is good at building with blocks. (He) (She) has made a high pile of blocks.

- This (boy) (girl) is not good at building with blocks. (He) (She) can't make a high pile of blocks. Which (boy) (girl) is most like you?

STRUCTURE-QUESTION 2

+ This (boy) (girl) is making a big house.

- This (boy) (girl) is afraid the blocks will fall down. Which (boy) (girl) is like you?

APPENDIX L -9

Scoring Form

LEARNER SELF-CONCEPT TEST

District ______________________ School ______________________

Name ______________________ Sex: M F Race: NW W

Examiner ______________________ Date of Test ______________________

GROUP A		GROUP B	
1. LAP (1 plate)	1. ________ 2. ________	1. COMFORT (1 plate)	1. ________ 2. ________
2. CARDS (1 plate)	1. ________ 2. ________	2. JACKET (2 plates)	1. ________ 2. ________
3. HUG (2 plates)	1. ________ 2. ________	3. SHARE (2 plates)	1. ________ 2. ________
4. GAME (1 plate)	1. ________ 2. ________	4. TOYS (2 plates)	1. ________ 2. ________
5. CUT (1 plate)	1. ________ 2. ________	5. PICTURE (1 plate)	1. ________ 2. ________
6. CLIMB (1 plate)	1. ________ 2. ________	6. BLOCKS (2 plates)	1. ________ 2. ________

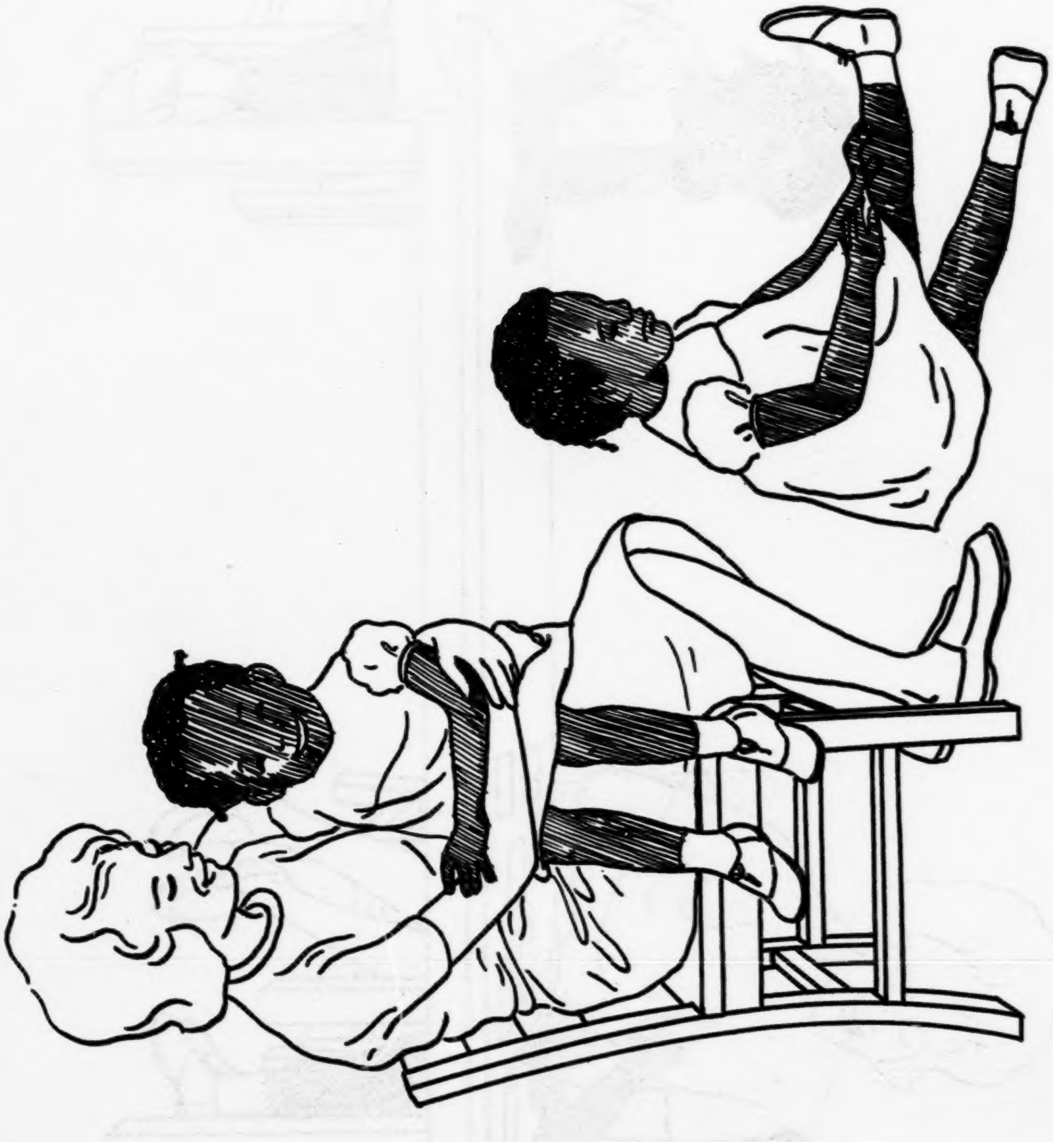
SCORING

	A	B	Total
Positive			
Negative			
Total			

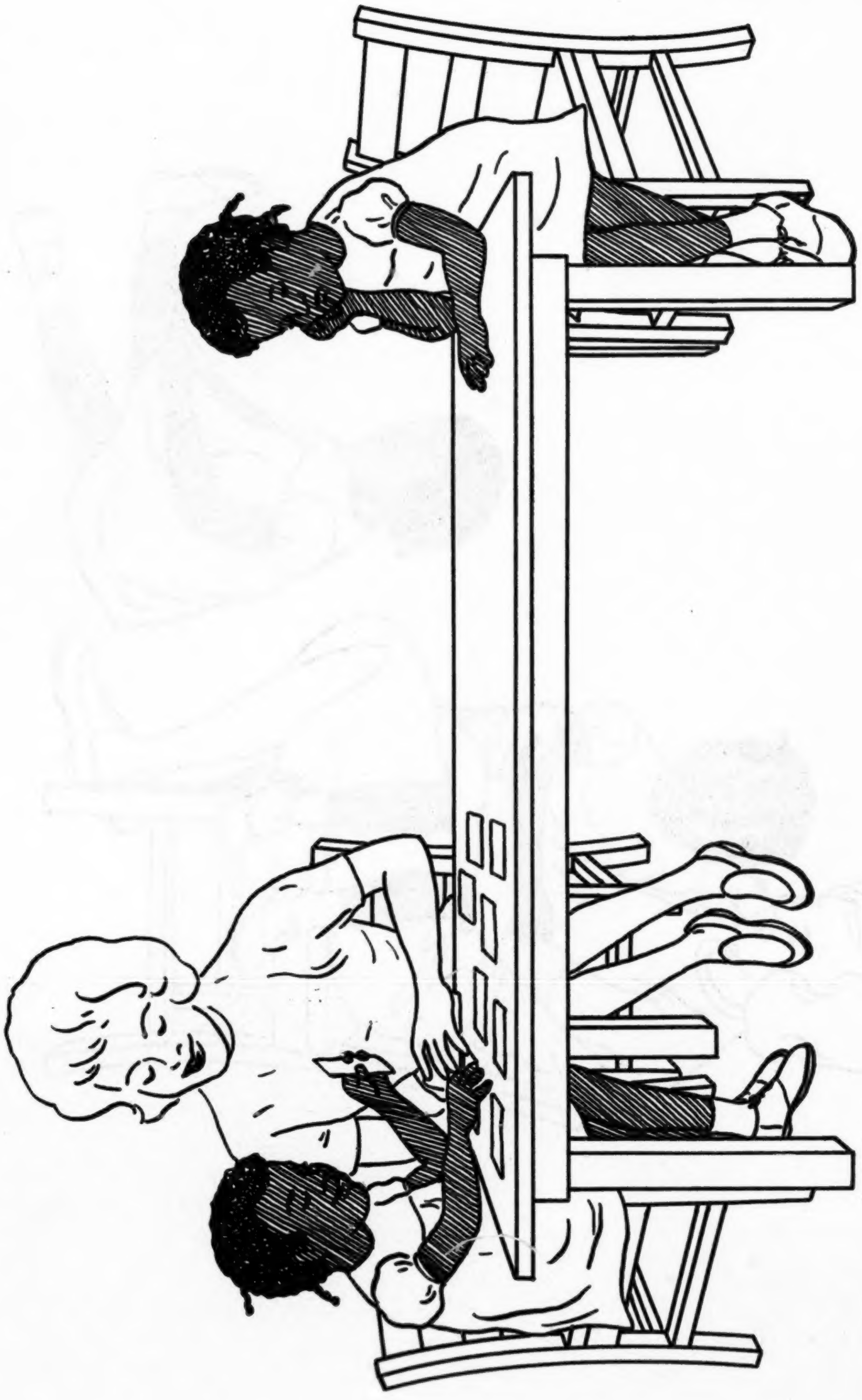
APPENDIX L-10

SELF-CONCEPT TEST PLATES

(Complete set for nonwhite girl; other sets
available for white girl, nonwhite boy, and white boy.)



APPENDIX L-11



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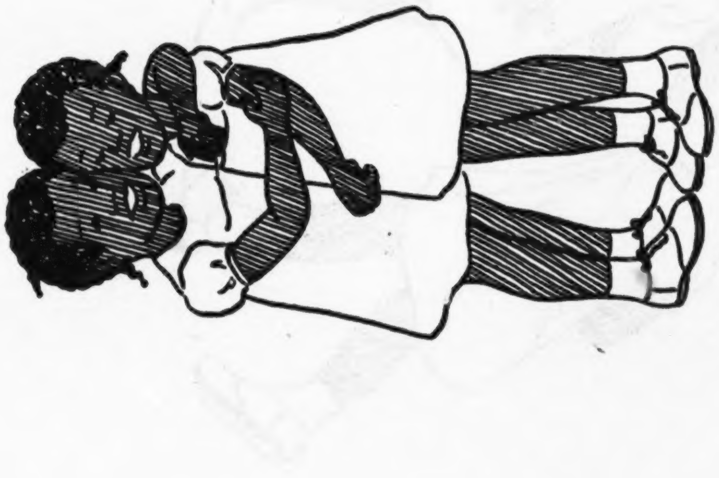

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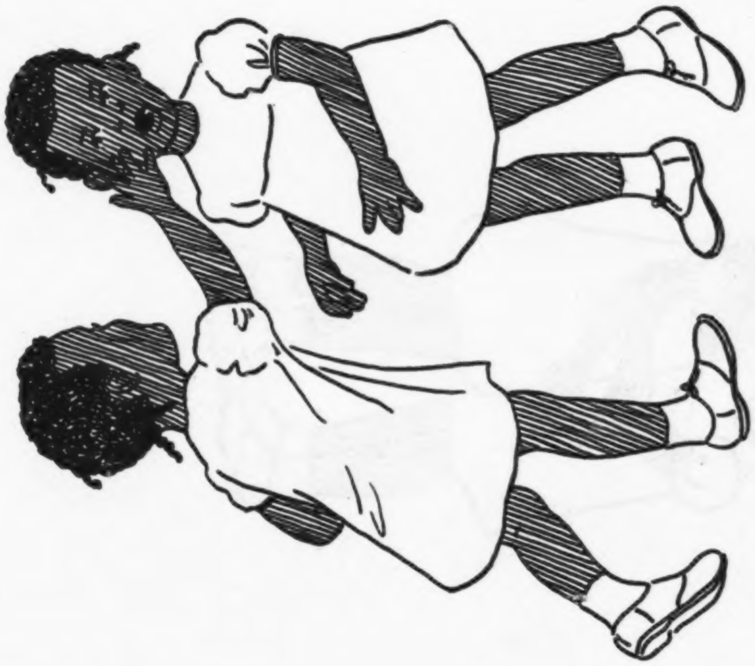

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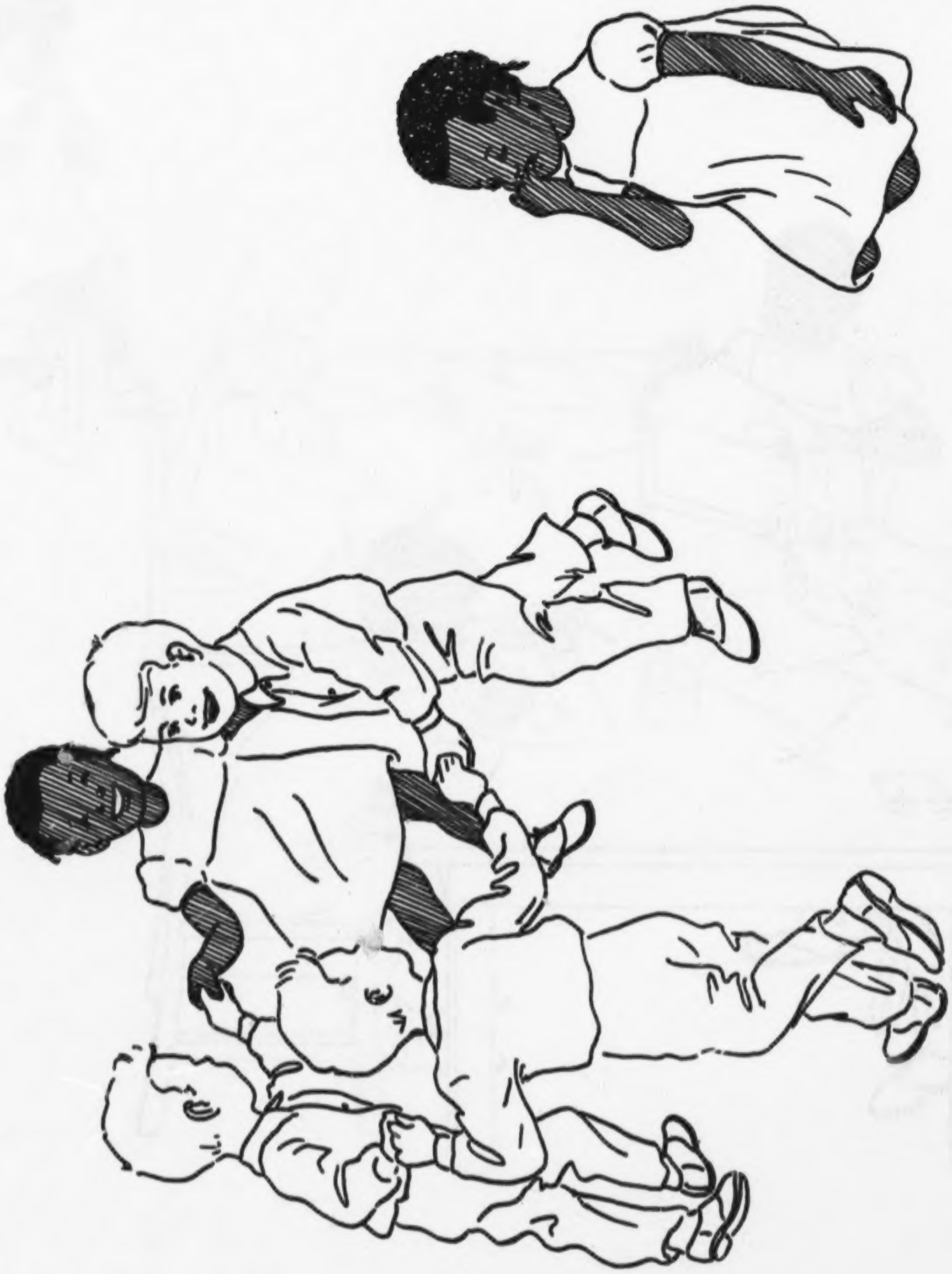

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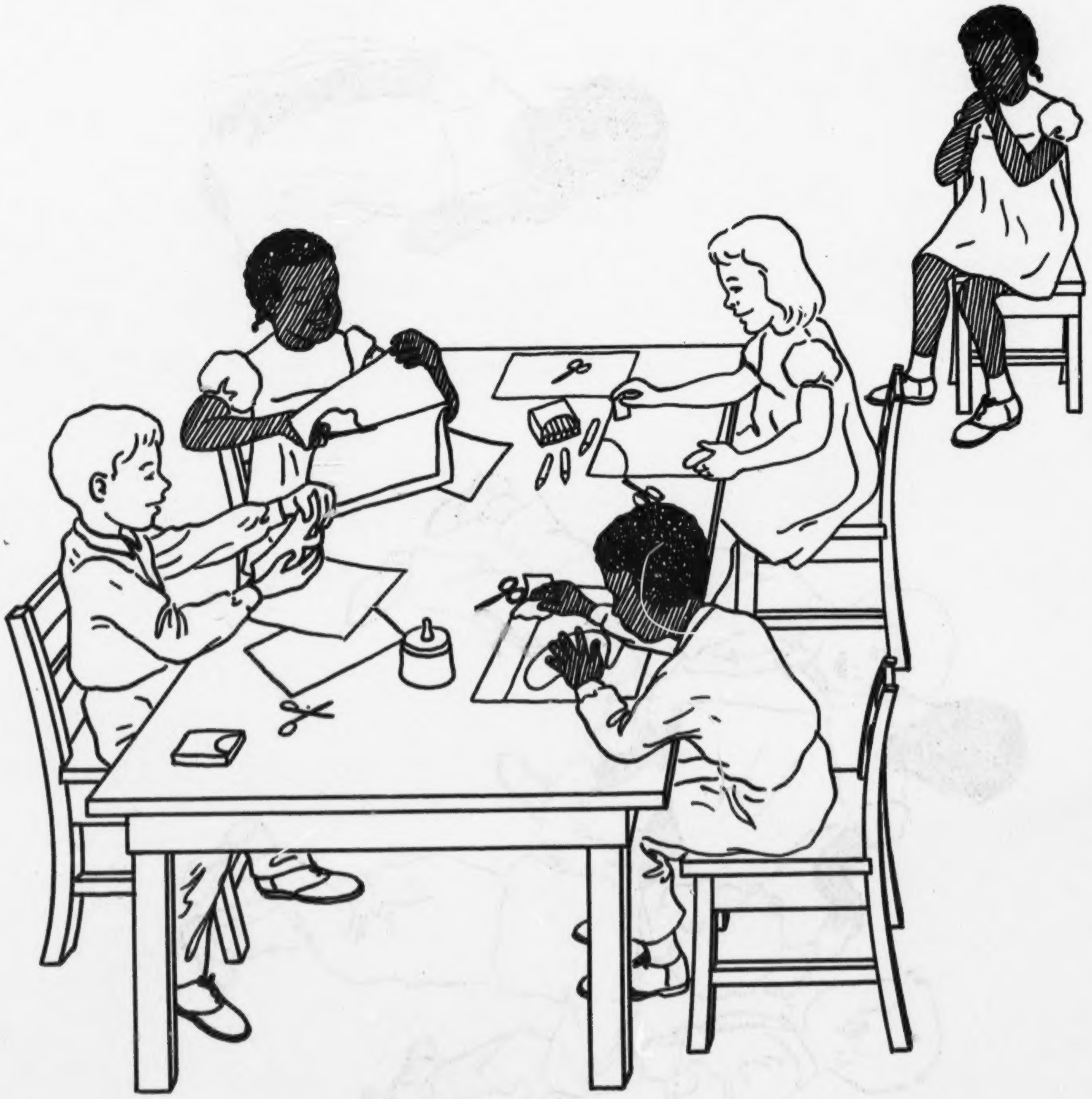

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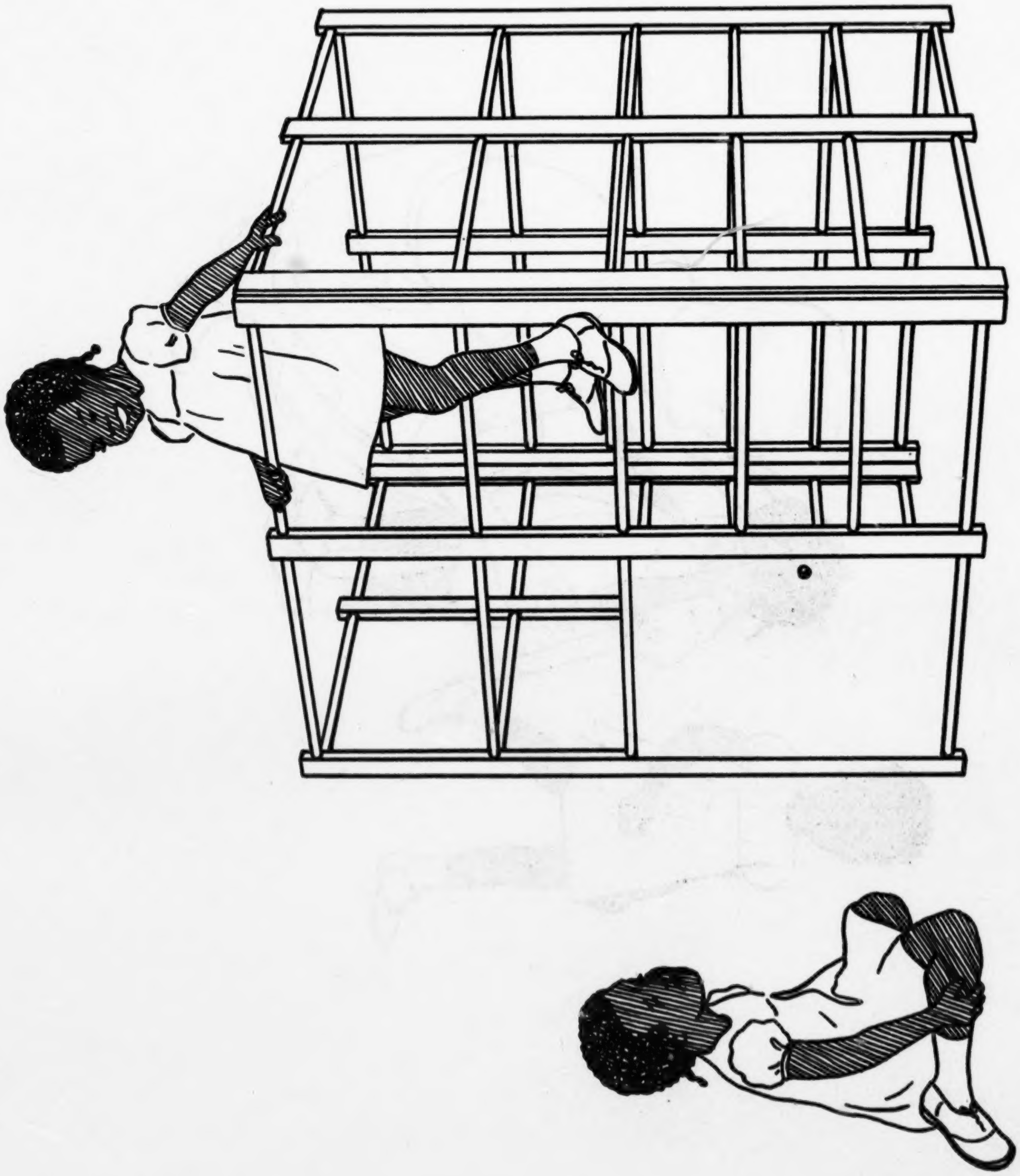

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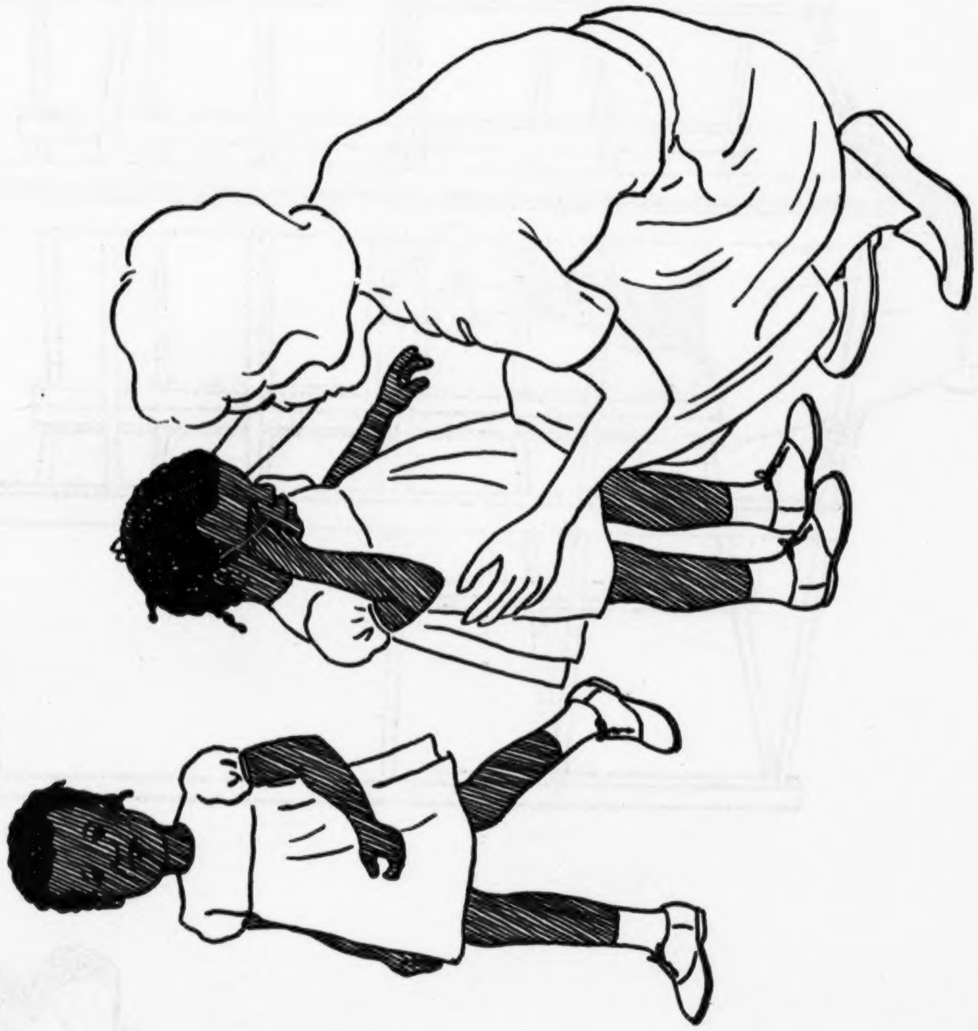

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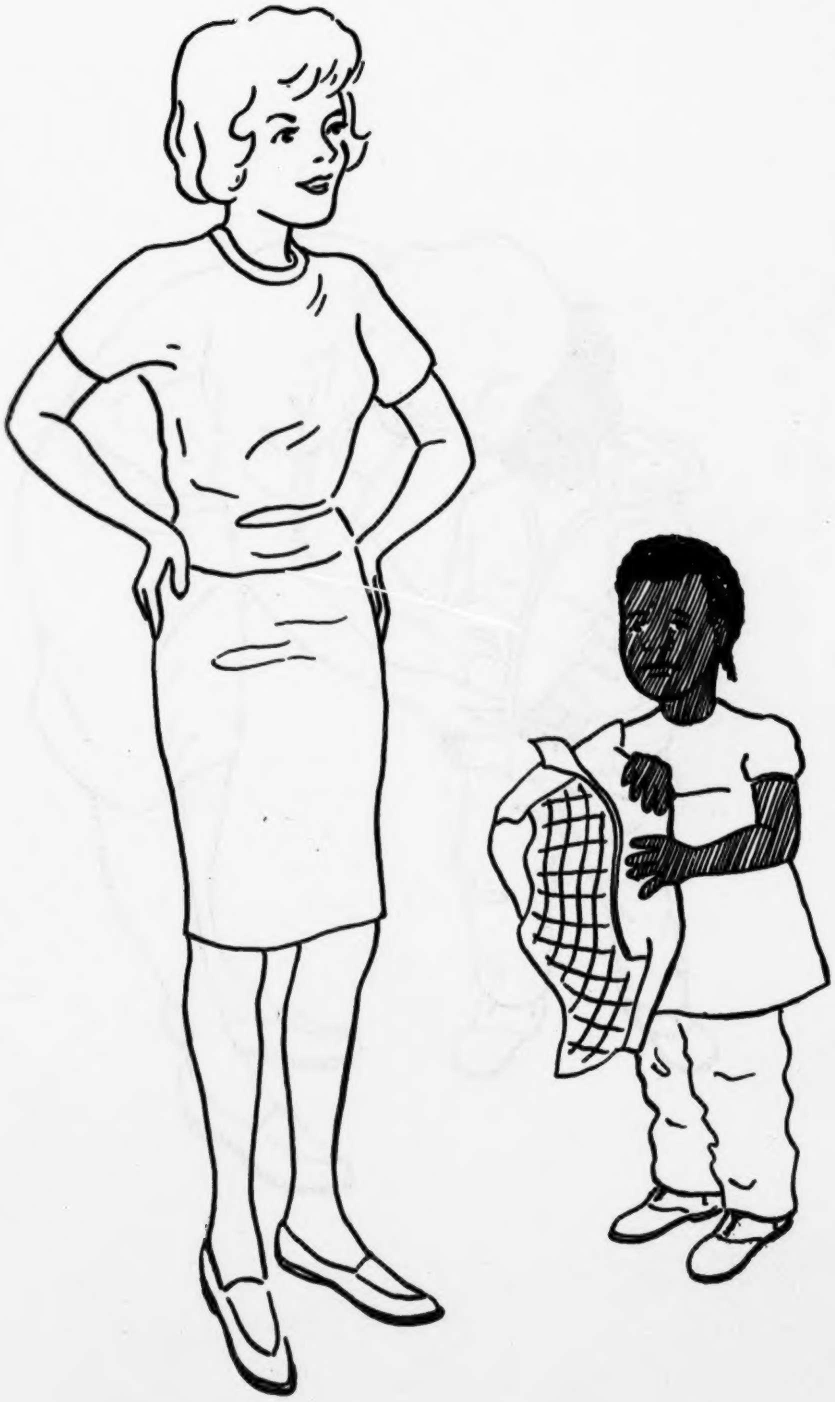

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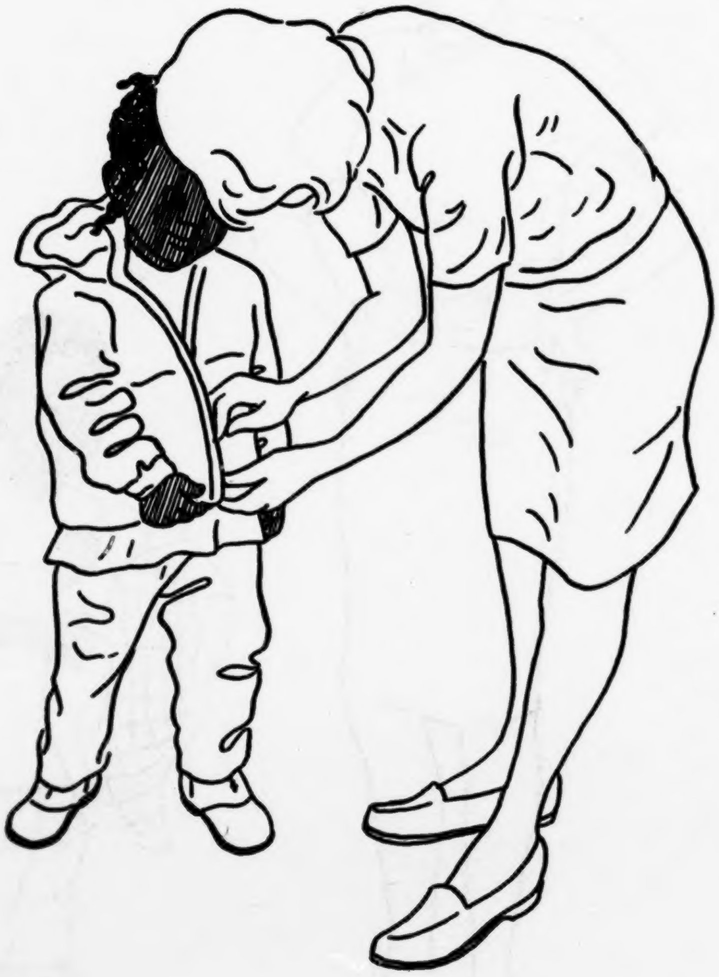

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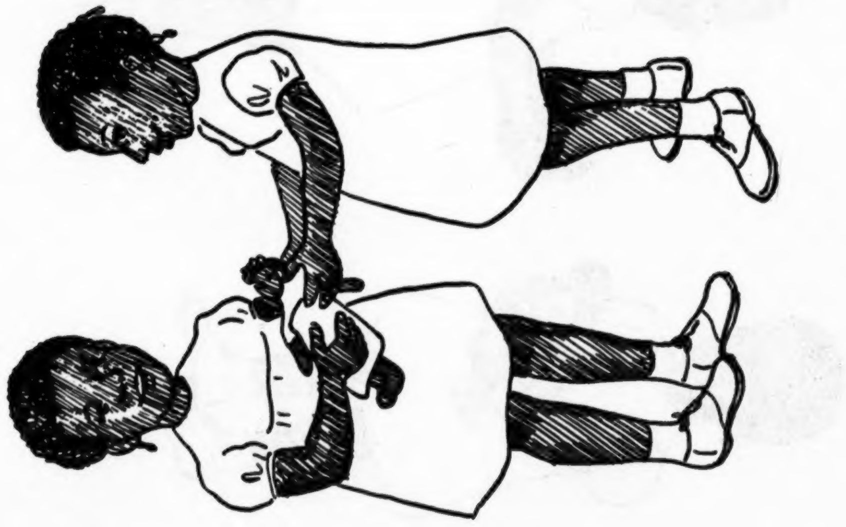

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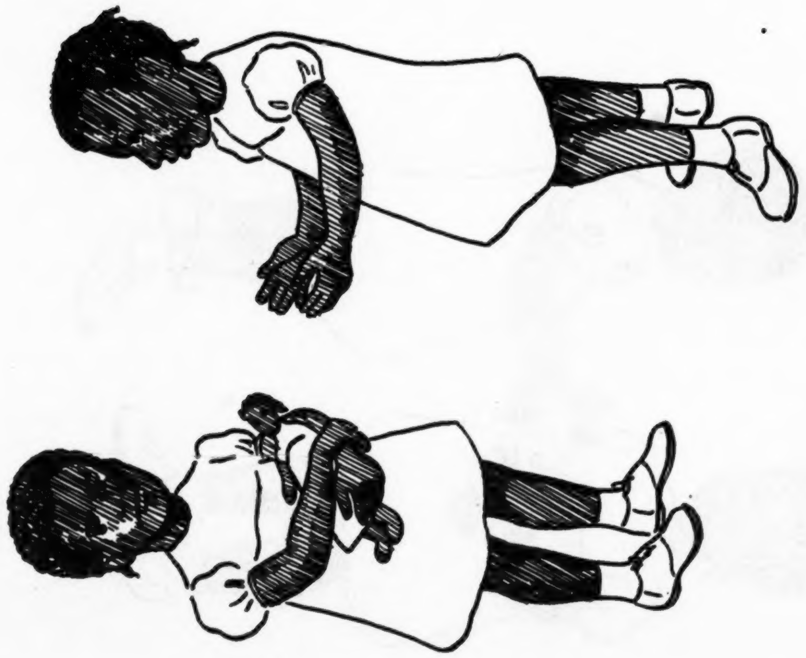

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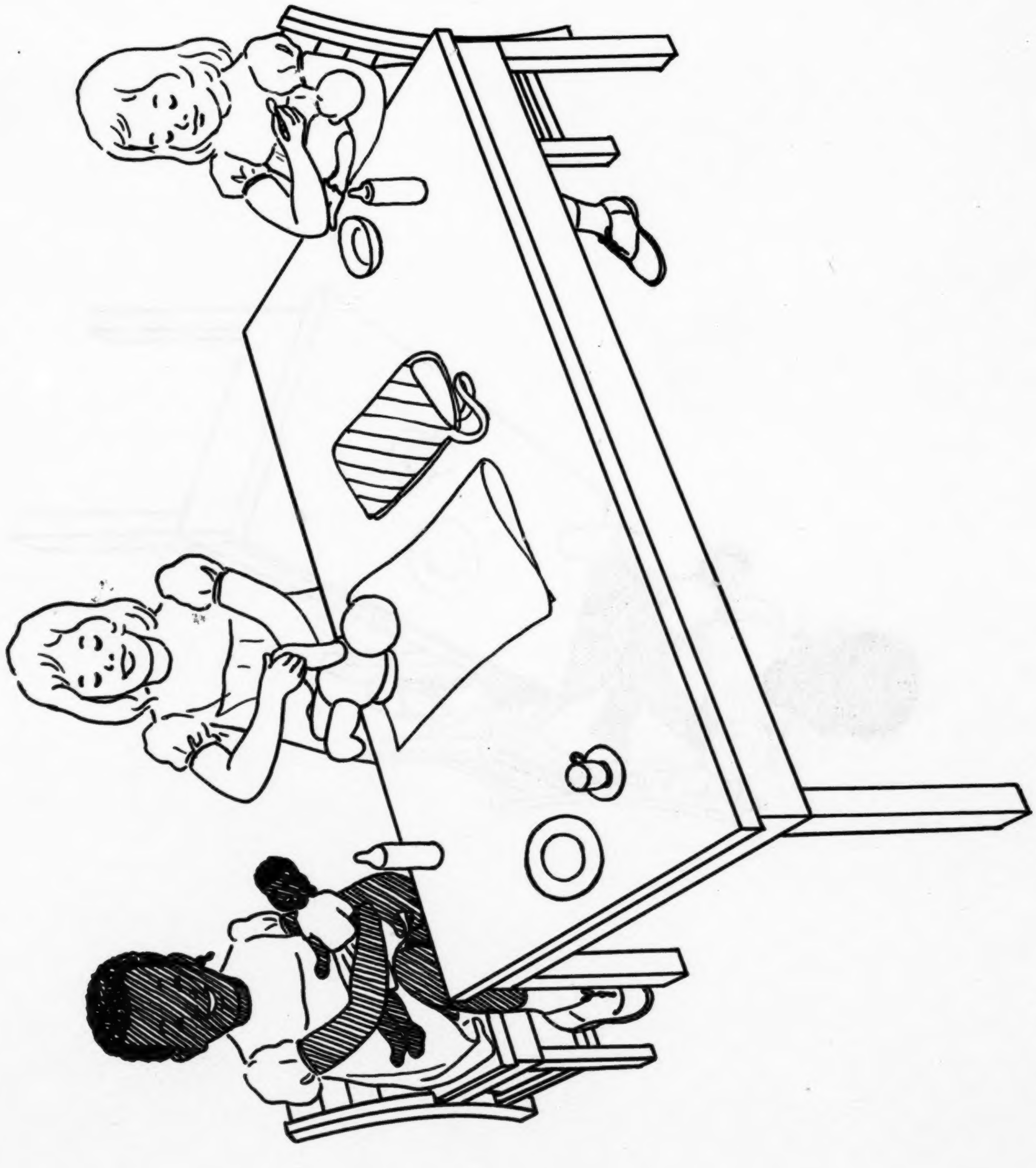

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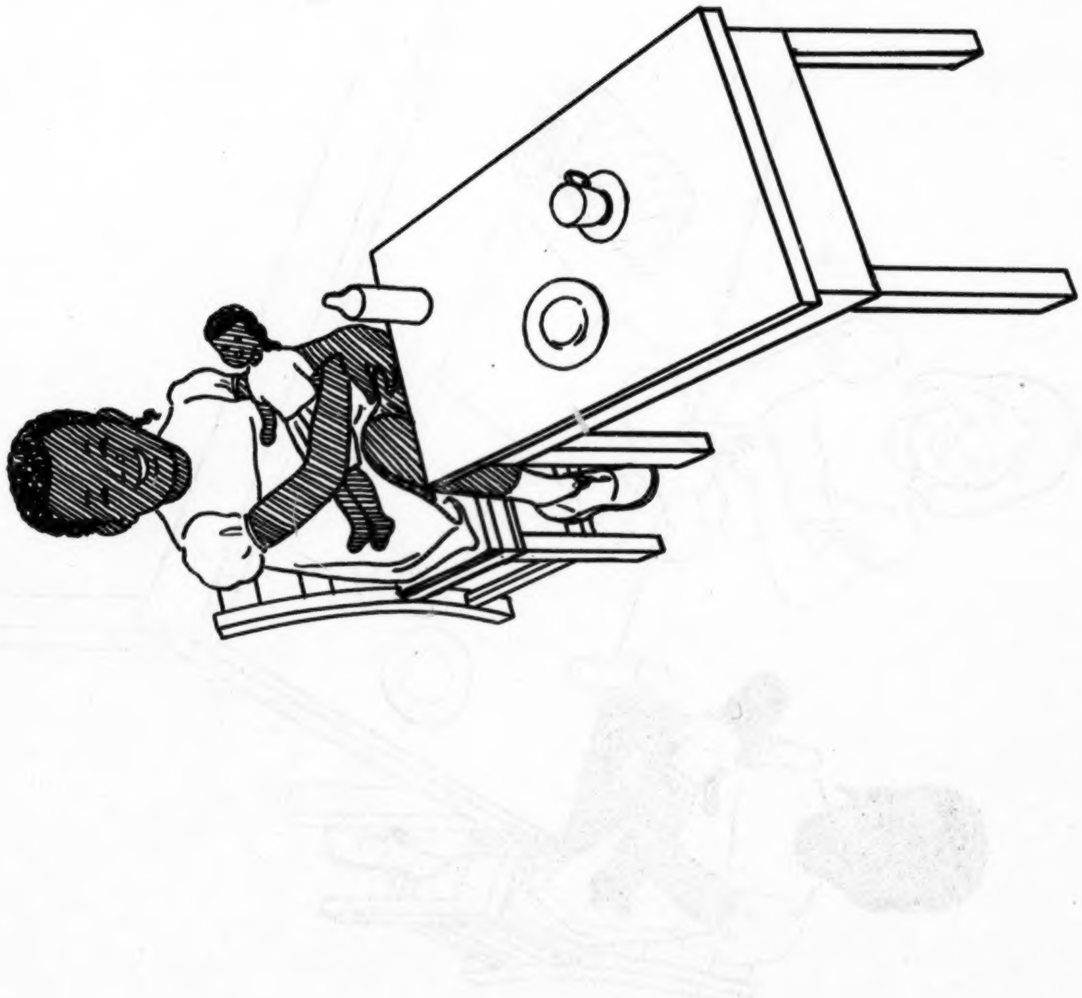

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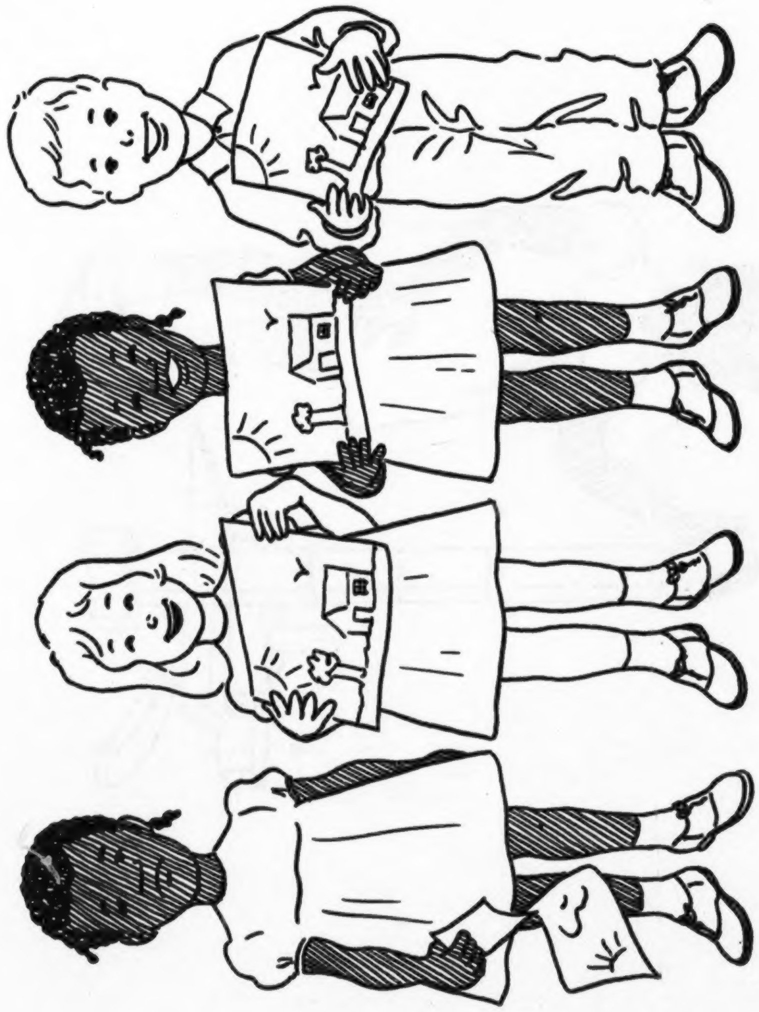

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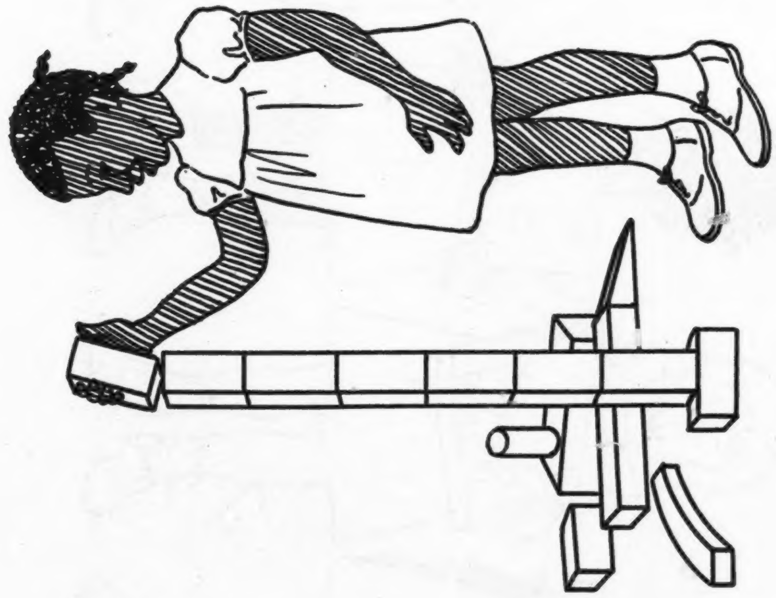

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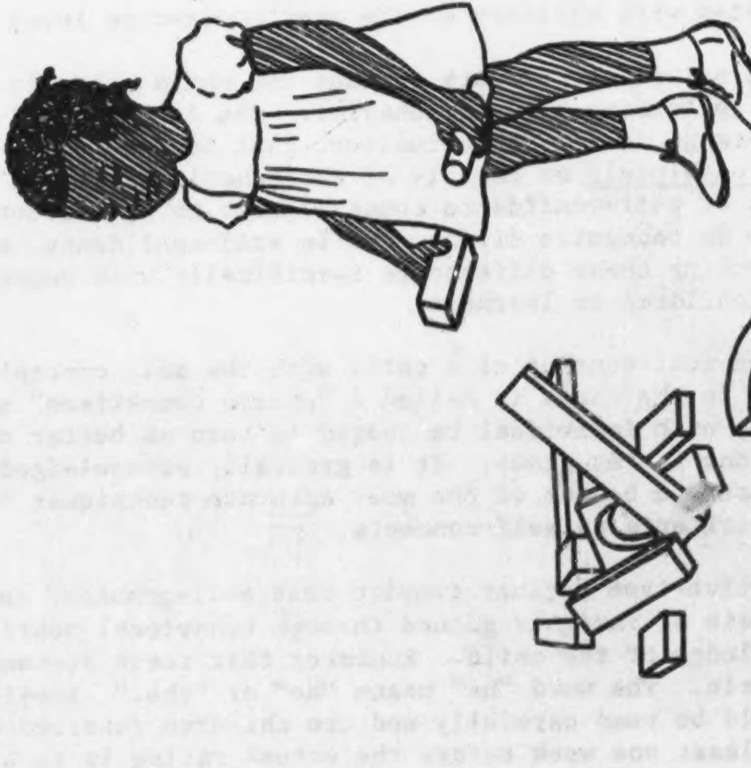

APPENDIX M-1

EVALUATIVE STUDY OF PREKINDERGARTEN PROGRAMS FOR EDUCATIONALLY DISADVANTAGED CHILDREN

Teacher Measurement of Pupil Self-Concept

Directions

This rating instrument contains three statements which describe how boys and girls see themselves, as learners, with regard to classroom materials, their peers, and their teachers. The items are based upon behaviors associated with children at the prekindergarten level.

The rater is not concerned with whether the child actually performs or is capable of performing a given behavior. She is concerned with the child's self-image in a given situation; that is, whether the child perceives himself as capable of the behavior. The commom expression of self-confidence comes closest to this construct of self-concept. We recognize differences in self-confidence, and the rater is reporting these differences specifically with regard to self concepts of children as learners.

Comparing the self-concept of a child with the self concept of every other pupil in the class is called a "paired comparison" method. This requires that each individual be judged in turn as better or worse than every other one in the group. It is generally acknowledged by psychometric experts to be one of the most accurate techniques for measuring covert criteria as self-concepts.

These subjective-type ratings require that well-grounded inferences be made on the basis of insights gained through behavioral observations and thorough knowledge of the child. Remember that these statements are about boys and girls. The word "he" means "he" or "she." Ideally, the rating items should be read carefully and the children observed with the items in mind at least one week before the actual rating is to be done. The rater is reminded that she must make a judgment regarding the child's overall self-concept in each of the three areas (e.g. relationship with materials, peers, and teachers). She is not interested in the pupils self-concept with respect to a specific illustration of a given statement. For statement 1 on page 4, for example, interest is focused on the degree to which each child "regards himself as competent and self-assured with respect to the use of classroom materials and equipment." The seven items which follow this statement (lettered a through g) are examples of some of the observations on which the overall judgment is to be made. There is no concern with a child's self-image with respect to any one of these items by itself--but with the total self-concept rating, all items considered.

There is a separate rating sheet for each of the three statements about self-concept to be considered. Children's names are listed alphabetically down the left side (column) and across the top (row) of the rating grid. The child whose name appears at the head of the column is compared with every other child represented in the row. If the teacher thinks the former has a higher self-image than the latter for the item under consideration, the former receives a "1" rating. Immediately thereafter, the latter child's name should be found in the column, and where he would have been compared with the former, a "0" entered. Zeros and ones are the only two ratings to be assigned, being reciprocal ratings for each two children compared. This rating procedure is followed for every child in the vertical column, as demonstrated by the illustration on page three.

In this sample demonstration, Barbara has a better self image for this item than Mary. Therefore a "1" is entered in the box opposite Barbara's name and under Mary's name (the intersection of Barbara, Mary). If Barbara has a "1" rating when compared with Mary, then Mary's rating when she is compared with Barbara must be reciprocal "0." Therefore a "0" is entered in the box opposite Mary's name and under Barbara's name (the intersection of Mary, Barbara).

Barbara is compared with all the others listed along the top. Then Mary (column) is compared with all the others along the top. Then Ruth, Tom, and so on. Only assignments of a "1" or a "0" may be made. If one name of a pair receives a "1," the other must recieve a "0."

For research purposes, it is important that ratings be based exclusively on the judgment of the teacher making the ratings. Therefore, please refrain from discussing the ratings to be assigned to a child until all the ratings have been completed.

APPENDIX M-3

1. **This child regards himself as competent and self-assured with respect to the use of classroom materials and equipment.**

NAMES	BARBARA	MARY	RUTH	TOM	ELLIOT	HAROLD	PHYLLIS														TOTAL
BARBARA	▨	1	0	0	1	0	0														
MARY	0	▨	0	0	1	0	0														
RUTH	1	1	▨	0	1	1	1														
TOM	1	1	1	▨	1	1	1														
ELLIOT	0	0	0	0	▨	0	0														
HAROLD	1	1	0	0	1	▨	1														
PHYLLIS	1	1	0	0	1	0	▨														
								▨													
									▨												
										▨											
											▨										
												▨									
													▨								
														▨							
															▨						
																▨					
																	▨				
																		▨			
																			▨		
																				▨	

District Northwood

Teacher Mrs. Wood

School East

Date 6/1/67

Class AM

APPENDIX M.4

2. This child regards himself as competent and self-assured in his classroom relationship with peers.

NAMES																					TOTAL
	▨																				
		▨																			
			▨																		
				▨																	
					▨																
						▨															
							▨														
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															▨						
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																	▨				
																		▨			
																			▨		
																				▨	

District ____________________ Teacher ____________________

School ____________________ Date ____________________

Class ____________________

APPENDIX M.5

3. **This child sees himself as capable and self-assured in his relationship with his teacher.**

NAMES																					**TOTAL**
	▨																				
		▨																			
			▨																		
				▨																	
					▨																
						▨															
							▨														
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															▨						
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																	▨				
																		▨			
																			▨		
																				▨	

District ____________________ **Teacher** ________________

School ____________________ **Date** ________________

Class ____________________

APPENDIX M-6

Teacher Measurement of Pupil Self Concept
Rating Items for Paired Comparisons

Statement 1 - MATERIALS

This child regards himself as competent and self-assured with respect to the use of classroom materials and equipment.

The child with a positive self-concept in this regard can be identified by characteristics such as the following:

a. Welcomes the introduction of new situations and varied materials.

b. Is confident and creative in finding unconventional uses for materials and equipment.

c. Sees self as being quite capable of mastering new items and new situations.

d. Responds well to the use of artistic and musical materials and is confident about his ability to use such items and to produce what he considers art or music.

e. Regularly makes use of picture books and considers himself readily able to comprehend these materials.

f. Sees himself as able to perform large motor activities well.

g. Masters his personal clothing -- is able to dress himself well -- and considers himself as being quite capable in this respect.

Statement 2 - PEERS

This child regards himself as competent and self-assured in his classroom relationship with peers.

The child with a positive self-concept in this area can be identified by characteristics such as the following:

a. Is free from self-consciousness, appears self-composed, and is not easily embarrassed when relating to peers.

b. Invites others to play, sees himself as a mediator of situations, devises ways to share equipment, and is a provider for others.

c. Shows affection for classmates, is good natured, and considers himself well-liked in return.

d. Sees himself as able to assist classmates experiencing some kind of difficulty.

e. Regards himself as competitive and responds to the activity of other children by exerting his own effort to excel.

f. Sees himself as able to find satisfying relationships with many different children.

APPENDIX M-7

Statement 3 - TEACHERS

This child sees himself as capable and self-assured in his relationship with his teacher.

The child with a positive self-concept in this respect can be identified by characteristics such as the following:

a. Regards himself as genuinely helpful to the teacher, voluntarily as well as upon her request.

b. Reacts positively to teacher's directions.

c. Feels free to make moderate tactile contact with the teacher, but does not feel that he must seek unusual attention from her.

d. Feels the teacher thinks highly of his accomplishments.

e. Is curious about things said and done by the teacher and feels sufficiently confident to pursue related questions.

f. Relates to the teacher frequently by smiling or kidding in a generally light vein.

g. Feels he is well-liked by the teacher and appears free from anxiety in his relationship to her.

APPENDIX N

LIST OF CLASSROOM ACTIVITIES FOR Q-SORT BY PROGRAM TEACHERS AND DIRECTORS

COGNITIVE INTELLECTUAL

Visual Discrimination Exercises
Sensory Discriminations
Determining Relationships
  (longer, shorter; larger, smaller)
Identifying Colors
Identifying Shapes
Number Counting
Alphabet (letter recognition)
Identifying Printed Name
Printing Name
Making Complete Sentences
Word Recognition
Reading Readiness Instruction
Telling Time
Word Games (e.g. Language Lotto)
Word Association Pictures and Names
Naming Parts of Body

Story Telling
Story Telling with Stories Made
  up by Teacher
Filmstrip Stories
Nursery Rhymes
Library Time (Children selecting
  and looking at books of choice
  from collection in room)

Flag Salute
Calendar Days of Week
Checking Weather
Show and Tell Time
Children Telling Stories
Conversation Groups

Science Activities
Cooking

Following Directions
Thematic Unit (e.g. animals, circus,
  spring, fall, helpers)

PHYSICAL-SOCIAL-EMOTIONAL

Free Play
Block Play
Water Play
Playing House
Dressup
Picture Puzzles
Clay Modeling
Play Dough
Easel Painting
Coloring
Finger Painting
Wood Working
Sand Table
Wheel Toys
Swings
Jungle Gym

Playground Period
Hand Puppets
Pantomime

Circle Games
Dancing
Calisthenics
Group Singing
Rhythm Band
Listening to Record Player
Live Music (Piano, Guitar)
Arts and Crafts Projects
Caring for Pets
Care of Plants
Cleanup and Preparation (Children
  participating)

Field Trips
Neighborhood Walk

Snack Time
Rest Time
Noon Lunch
Brushing Teeth

APPENDIX O-1

LIST OF PERSONNEL

PREKINDERGARTEN TEACHERS

Cortland

Ina Beane
Catherine Becker
Elizabeth Brainard
Margaret Cox
Barbara Freed
Karen Irish

Greenburgh

Erna Brout
Elaine Cahan
Grace Hirsch
Darlene Jonus
Jean Rosenberg
Sybil Schwartz
John Sherman

Hempstead

Marie Grant
Anna Herring
Elizabeth Townsend
Ruth Wulfson

Long Beach

Patricia Horkan
Barbara Prager

Mount Vernon

Kathleen Frohne
Dorothy Gross
Edward McGrath
Emily Rosen
Carol Rosenfeld
L. Scheerer
Doris Schwartz

Schenectady

Rita Baxter
Vivian Coonan
Carol Wernick

Spring Valley

Alice Reiser
Elaine Schlossman
Edna Taylor

Yonkers

Ann De Socio
Carol Friedman

SCHOOL DISTRICT ADMINISTRATIVE PERSONNEL

Cortland

Joseph Halliwell
Marion Potts
Donald Musella
Carl Savino

Greenburgh

Bertram Freilich
Sinai Waxman
Irving Miller
Marilyn Robeson
George Nemeth
Minnie Kennedy

Hempstead

Robert Cody
Elio Bruschi
Una Flemming
Geraldine Powe
Paul Van Wagner

Long Beach

Joseph Sturm
Robert Kirsch

Mount Vernon

Norman Eagle
Nancy Rambusch
Martin Bender
Minna Brown
Harold Fulk
Edward Williams

Schenectady

Clarence Spain
Custer Quick

Spring Valley

Linda Chambers
Lucille Stewart
Richard Hawkins
Robert Cogger
Selma Whilt

Yonkers

Jean Graig
Rosalind Silver
Julia Smith
Mary Fenwood

PREKINDERGARTEN PROGRAM OBSERVERS

Charles Armstrong
Peggy Azbill
Fred Baruchin
Ruth Flurry

Shelly Halpern
Laura Harckham
Robert Hayden
Dolores Hunter

Alice Meeker
Robert Murdoch
Frances Nolan
Jack Roosa

James Shea
Gerald Wohlferd
Katherine Woods
Margaret Yonemura

APPENDIX O-2

TESTING PERSONNEL

Testing Psychologists

Allen Alexander
Margaret Brown
Vito Gioia
Victor Hofberg
Jack Sloan

Other Testing Personnel

Steven Benson
Joel Bindler
Carolyn Byrne
Horace Crandell
Vito DiCesare
Ronald Ellis
Mary Flynn
F. Paul Kelliher
Elaine Langsner
Fred Neckers
Patrick Quinn
William Reilly
Helen Rivlin
Mary Lou Savino
Helen Schnide
Barry Shaw
Guy Spath
John Storte
Raymond Sullivan
Henry Zgadlo

PROJECT STAFF-NEW YORK STATE EDUCATION DEPARTMENT

Research Personnel

Louis T. Di Lorenzo
Ruth Salter
James J. Brady
Mary D. Horan
Sigmund Abeles
Eric Nagler
T. G. Smith
Theodore Bienenstok

Secretarial and Clerical

Ella M. Patterson
Jacquelyn P. Marlow
William Arnstein
Marie Cooper
Diane Grebert
Marilyn Miller
Shirley Peter